REPORT RESUMES

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INDEXES AND ABSTRACTS OF RESEARCH COMPLETED IN THE FIELD OF AGRICULTURAL EDUCATION FROM 1951-1965 AT IOWA STATE UNIVERSITY.

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IOWA STATE DEPT. OF PUBLIC INSTR., DES MOINES
IOWA STATE UNIV. OF SCIENCE AND TECH., AMES

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THIS COMPILATION SUPPLEMENTS AND UPDATES THE 1951 MASTER'S THESIS OF ROBERT M. COLLINS. ABSTRACTS ARE INDEXED BY AUTHOR, SUBJECT, AND CHRONOLOGY. ABSTRACTS FOR EACH OF THE 103 MASTER'S THESES AND 19 DOCTORAL DISSERTATIONS INCLUDE THE AUTHOR'S NAME, TITLE, DEGREE, DATE, PURPOSE, METHOD AND FINDINGS, AND INTERPRETATIONS. (JM)

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INDEXES AND ABSTRACTS OF RESEARCH COMPLETED IN THE FIELD OF AGRICULTURAL EDUCATION FROM 1951 - 1965 AT IOWA STATE UNIVERSITY

Compiled and Edited

by

WILLIAM M. FRELUND

Under the Direction of
DR. TREVOR G. HOWE

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1966

DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF VOCATIONAL EDUCATION
DES MOINES, IOWA

in cooperation with the

DEPARTMENT OF EDUCATION
IOWA STATE UNIVERSITY
AMES, IOWA

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INTRODUCTION

The following compilation of indexes and abstracts includes research completed in Agricultural Education at Iowa State University from 1951 through 1965. As such it supplements and updates the Master's thesis of Robert M. Collins (1951) which reported research completed in Agricultural Education prior to 1951. It is hoped that this compilation will be of value to researchers and others interested in the field of Agricultural Education.

Between January 1951 and December 1965 there were 103 Master studies and 19 doctorate studies completed in Agricultural Education. The number of studies by year is as follows:

	M.V.Ed.	M.S.	Ph.D.
1951	0	8	2
1952	0	10	0
1953	0	3	3
1954	0	10	0
1955	0	6	1
1956	0	10	2
1957	1	3	2
1958	0	7	2
1959	2	8	0
1960	0	1	0
1961	1	8	0
1962	2	2	2
1963	1	3	2
1964	0	8	2
1965	2	7	1

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1.	Aldinger, Stanley Merle	M.S.	1954
2.	Anderson, Ronald Elmer	M.S.	1956
3.	Anderson, Willard Raymond	M.S.	1952
4.	Archer, Beverly Byrd	M.S.	1955
5.	Aronson, Ronald Frazier	M.S.	1958
6.	Ball, Wilbur Perry	Ph.D.	1956
7.	Barrett, Edward W.	M.S.	1957
8.	Bateman, Simeon David	M.S.	1959
9.	Bear, William Forrest	M.S.	1959
10.	Bear, William Forrest	Ph.D.	1963
11.	Beitz, Myles Robert	M.V.Ed.	1961
12.	Bendixen, Joe Francis	M.S.	1963
13.	Bennett, William Clair	M.S.	1965
14.	Betts, Merle Edward	M.S.	1952
15.	Betts, Merle Edward	Ph.D.	1953
16.	Bishop, John Edward Francis	M.S.	1962
17.	Bittner, Richard Hummel	M.S.	1958
18.	Blake, Duane LeRoy	M.S.	1956
19.	Blake, Duane LeRoy	Ph.D.	1963
20.	Brown, Alan Ralph	M.S.	1960
21.	Carlson, Keith Ransom	M.S.	1965
22.	Carstens, Harold Lloyd	M.Ed.	1965
23.	Cathey, George W.	M.S.	1953
24.	Christensen, Don Newell	M.S.	1958
25.	Christensen, Sigmund	M.V.Ed.	1959
26.	Clover, Everett Leroy	M.S.	1961
27.	Collins, Robert Matthew	M.S.	1951
28.	Collins, Robert Matthew	Ph.D.	1953
29.	Cox, Charles Andy	M.S.	1955
30.	Crawford, Harold Reid	M.S.	1955
31.	Daken, Edward Elton	M.S.	1956
32.	Davidson, Stanley	M.S.	1952
33.	Dettmann, Emeron P.	M.S.	1965
34.	Douce, Lowell Richard	M.S.	1954
35.	Drake, Eldon M.	Ph.D.	1951
36.	Eggenberger, Ulrich Lewis	Ph.D.	1964
37.	Elliot, Dean Alexander	M.S.	1951
38.	Elliot, Dean Alexander	Ph.D.	1957
39.	Fife, Harvey Drexel	M.S.	1958
40.	Fulton, David Albert	M.S.	1956
41.	Gauger, Carlyle Jay	M.S.	1955
42.	Green, Donald George	M.S.	1954
43.	Hamilton, James Dixon, Jr.	M.S.	1951
44.	Hamilton, James Edward	M.S.	1953
45.	Hamilton, William Henry	M.S.	1964

46.	Henderson, Earl Maynard	M.S.	1956
47.	Hensel, James William	M.S.	1959
48.	Hensel, James William	Ph.D.	1962
49.	Herman, Ralph Hilbert	M.S.	1957
50.	Hoerner, Thomas Allen	M.S.	1963
51.	Hoerner, Thomas Allen	Ph.D.	1965
52.	Holz, Alfred Henry	M.V.Ed.	1962
53.	Hoyt, Lindley John	M.S.	1965
54.	Iverson, Roger Duane	M.S.	1964
55.	Jabro, Salim Hanna	Ph.D.	1962
56.	James, Ross Eldon	M.S.	1959
57.	Johnson, Carlton Egbert	Ph.D.	1956
58.	Johnson, Erric Jason	M.S.	1955
59.	Johnson, Wilbur B.	M.S.	1952
60.	Jones, George McIntyre	M.S.	1952
61.	Jones, Robert Gaylor	M.S.	1959
62.	Kahler, Alan Arnold	M.S.	1964
63.	Kasperbauer, Michael John	M.S.	1957
64.	Kearney, Richard Joseph	M.S.	1954
65.	Knecht, Verne Harold	M.S.	1959
66.	Komasa, Noel Joseph	M.S.	1961
67.	Lauterbach, Lewis Guy	M.S.	1956
68.	Lawrence, Roger Lee	Ph.D.	1958
69.	Little, Morris Clifford	M.S.	1953
70.	Lockwood, Larry Lee	M.S.	1964
71.	Mabon, Elwood Jackson	M.S.	1964
72.	Maddy, Paul Eugene	M.S.	1956
73.	Madramootoo, Harry	M.S.	1961
74.	Martin, Sheridan Everett	M.S.	1954
75.	Maxwell, Robert Haworth	M.S.	1964
76.	McCracken, John David	M.S.	1962
77.	McIntosh, Booker T.	M.V.Ed.	1962
78.	Meilike, Donald John	M.S.	1951
79.	Meyer, James Albert	M.Ed.	1965
80.	Miller, Dirk William	M.V.Ed.	1963
81.	Miller, Jimmy Walter	M.S.	1954
82.	Mitschele, Walter	M.S.	1965
83.	Newton, Melvin Frasier	M.S.	1961
84.	Nielsen, Duane Melvin	Ph.D.	1958
85.	O'Brien, Michael	Ph.D.	1951
86.	Olver, Elwood Forrest	Ph.D.	1957
87.	Peery, Dudley Lewis	M.S.	1951
88.	Perdue, Charles Emery	M.S.	1952
89.	Powell, Thomas Raymond	M.S.	1965
90.	Raines, Rolla Glenn	M.S.	1951

91.	Reinebach, Loyal Marion	M.S.	1951
92.	Rhea, Mark B.	Ph.D.	1953
93.	Rhodes, Clarence Lloyd	M.S.	1952
94.	Robinson, Norman Lyle	M.S.	1964
95.	Robinson, Ted Richard	M.S.	1959
96.	Robinson, Ted Richard	Ph.D.	1964
97.	Salmela, Melvin Raymond	M.S.	1958
98.	Satorius, Jack Henry	M.S.	1959
99.	Saupe, William Edward	M.S.	1961
100.	Schmidt, Gerald John	M.S.	1961
101.	Shih, Samuel H.K.	M.S.	1955
102.	Spruill, Albert Wesley	M.S.	1951
103.	Stevenson, Paul Nelson	M.S.	1956
104.	Stewart, William Warren	M.S.	1956
105.	Strautman, James John	M.S.	1958
106.	Stuchel, Henry Irvin	M.S.	1965
107.	Studt, Dale Marcyl	M.S.	1954
108.	Suzui, Richard Shigeru	M.S.	1952
109.	Swanson, Robert Magni	M.S.	1961
110.	Thompson, Marvin Delmar	Ph.D.	1955
111.	Van Loh, Frederick	M.S.	1964
112.	Villaviza, Quirino N.	M.V.Ed.	1959
113.	Wall, James Eugene	M.S.	1954
114.	Warren, Marshall Garnett	M.S.	1952
115.	Weed, Joseph Bernard	M.S.	1963
116.	Weller, Egbert Douglas-Haig	M.S.	1952
117.	Wells, Carl Edward	M.S.	1958
118.	Wescoat, Wendell Maynard	M.S.	1956
119.	Wignes, Stanley Allen	M.S.	1954
120.	Williams, Joe Brooks	M.S.	1954
121.	Wyatt, Windol Lee	M.S.	1961
122.	Yancy, Robert Ernest	M.V.Ed.	1957

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	37	Elliot, Dean Alexander	M.S.
	43	Hamilton, James Dixon, Jr.	M.S.
	78	Meilike, Donald John	M.S.
	85	O'Brien, Michael	Ph.D.
	87	Peery, Dudley Lewis	M.S.
	90	Raines, Rolla Glenn	M.S.
	91	Reinebach, Loyal Marion	M.S.
	102	Spruill, Albert Wesley	M.S.
1952	3	Anderson, Willard Raymond	M.S.
	14	Betts, Merle Edward	M.S.
	32	Davidson, Stanley	M.S.
	59	Johnson, Wilbur B.	M.S.
	60	Jones, George McIntyre	M.S.
	88	Perdue, Charles Emery	M.S.
	93	Rhodes, Clarence Lloyd	M.S.
	108	Suzui, Richard Shigeru	M.S.
	114	Warren, Marshall Garnett	M.S.
	116	Weller, Egbert Douglas-Haig	M.S.
1953	15	Betts, Merle Edward	Ph.D.
	23	Cathey, George W.	M.S.
	28	Collins, Robert Matthew	Ph.D.
	44	Hamilton, James Edward	M.S.
	69	Little, Morris Clifford	M.S.
	92	Rhea, Mark B.	Ph.D.
1954	1	Aldinger, Stanley Merle	M.S.
	34	Douce, Lowell Richard	M.S.
	42	Green, Donald George	M.S.
	64	Kearney, Richard Joseph	M.S.
	74	Martin, Sheridan Everett	M.S.
	81	Miller, Jimmy Walter	M.S.
	107	Studt, Dale Marcyl	M.S.
	113	Wall, James Eugene	M.S.
	119	Wignes, Stanley Allen	M.S.
	120	Williams, Joe Brooks	M.S.
1955	4	Archer, Beverly Byrd	M.S.
	29	Cox, Charles Andy	M.S.
	30	Crawford, Harold Reid	M.S.
	41	Gauger, Carlyle Jay	M.S.
	58	Johnson, Erric Jason	M.S.
	101	Shih, Samuel H.K.	M.S.
	110	Thompson, Marvin Delmar	Ph.D.

Year	Ref. No.	Name	Degree
1956	2	Anderson, Ronald Elmer	M.S.
	6	Ball, Wilbur Perry	Ph.D.
	18	Blake, Duane LeRoy	M.S.
	31	Dakan, Edward Elton	M.S.
	40	Fulton, David Albert	M.S.
	46	Henderson, Earl Maynard	M.S.
	57	Johnson, Carlton Egbert	Ph.D.
	67	Lauterbach, Lewis Guy	M.S.
	72	Maddy, Paul Eugene	M.S.
	103	Stevenson, Paul Nelson	M.S.
	104	Stewart, William Warren	M.S.
	118	Wescoat, Wendell Maynard	M.S.
1957	7	Barrett, Edward W.	M.S.
	38	Elliott, Dean Alexander	Ph.D.
	49	Herman, Ralph Hilbert	M.S.
	63	Kasperbauer, Michael John	M.S.
	86	Olver, Elwood Forrest	Ph.D.
	122	Yancy, Robert Ernest	M.V.Ed.
1958	5	Aronson, Ronald Frazier	M.S.
	17	Bittner, Richard Hummel	M.S.
	24	Christensen, Don Newell	M.S.
	39	Fife, Harvey Drexel	M.S.
	68	Lawrence, Roger Lee	Ph.D.
	84	Nielsen, Duane Melvin	Ph.D.
	97	Salmela, Melvin Raymond	M.S.
	105	Strautman, James John	M.S.
	117	Wells, Carl Edward	M.S.
1959	8	Bateman, Simeon David	M.S.
	9	Bear, William Forrest	M.S.
	25	Christensen, Sigmund	M.V.Ed.
	47	Hensel, James William	M.S.
	56	James, Ross Eldon	M.S.
	61	Jones, Robert Gaylor	M.S.
	65	Knecht, Verne Harold	M.S.
	95	Robinson, Ted Richard	M.S.
	98	Satorius, Jack Henry	M.S.
	112	Villaviza, Quirino N.	M.V.Ed.
1960	20	Brown, Alan Ralph	M.S.
1961	11	Beitz, Myles Robert	M.V.Ed.
	26	Clover, Everett Leroy	M.S.
	66	Komasa, Noel Joseph	M.S.
	73	Madramootoo, Harry	M.S.
	83	Newton, Melvin Frazier	M.S.
	99	Saupe, William Edward	M.S.
	100	Schmidt, Gerald John	M.S.
	109	Swanson, Robert Magni	M.S.
	121	Wyatt, Windol Lee	M.S.

Year	Ref. No.	Name	Degree
1962	16	Bishop, John Edward Francis	M.S.
	48	Hensel, James William	Ph.D.
	52	Holz, Alfred Henry	M.V.Ed.
	55	Jabro, Salim Hanna	Ph.D.
	76	McCracken, John David	M.S.
	77	McIntosh, Booker T.	M.V.Ed.
1963	10	Bear, William Forrest	Ph.D.
	12	Bendixen, Joe Francis	M.S.
	19	Blake, Duane LeRoy	Ph.D.
	50	Hoerner, Thomas Allen	M.S.
	80	Miller, Dirk William	M.V.Ed.
	115	Weed, Joseph Bernard	M.S.
1964	36	Eggenberger, Ulrich Lewis	Ph.D.
	45	Hamilton, William Henry	M.S.
	54	Iverson, Roger Duane	M.S.
	62	Kahler, Alan Arnold	M.S.
	70	Lockwood, Larry Lee	M.S.
	71	Mabon, Elwood Jackson	M.S.
	75	Maxwell, Robert Haworth	M.S.
	94	Robinson, Norman Lyle	M.S.
	96	Robinson, Ted Richard	Ph.D.
	111	Van Loh, Frederick	M.S.
1965	13	Bennett, William Clair	M.S.
	21	Carlson, Keith Ransom	M.S.
	22	Carstens, Harold Lloyd	M.Ed.
	33	Dettmann, Emeron P.	M.S.
	51	Hoerner, Thomas Allen	Ph.D.
	53	Hoyt, Lindley John	M.S.
	79	Meyer, James Albert	M.Ed.
	82	Mitschele, Walter	M.S.
	89	Powell, Thomas Raymond	M.S.
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ALDINGER, STANLEY MERLE

Occupations of Farm-Reared Graduates of
High Schools Offering Vocational Agri-
culture in Central Iowa. Thesis, M.S.,
1954. Iowa State College. 43 p. Library,
Iowa State College, Ames.

Purpose - - To determine the extent to which male students from farms, who were graduates from high schools offering vocational agriculture entered farming; as compared with the extent to which male students from farms, who were graduates from high schools not offering such work entered farming.

Method - - The study included five communities in the cash grain area of central Iowa in which vocational agriculture was offered for a period of ten school years from 1937-1938 to 1946--1947, inclusive. These communities were paired with similar communities in which vocational agriculture was not offered. Information concerning 625 graduates was secured from high school records and from persons of long residence in the community who knew the graduates during the period of time included in this study and the present time. Analysis of variance was used to determine the significance of the data.

Findings and Interpretations - - Some differences in farming status between graduates in the five communities offering vocational agriculture and the five communities not offering such work were found favoring the communities offering vocational agriculture. However, the differences failed to meet the five percent level of significance. Thus, information was not available in this study which would demonstrate any significant superiority for the vocational agriculture graduates when evaluated in terms of farming status. The fact that differences were not found to be significant may have been due to the small number of schools involved or to unsatisfactory bases of pairing the communities. Suggestions were made for planning a more comprehensive study.

ANDERSON, RONALD ELMER

Contribution of Protestant Missions to
Agriculture in the Philippine Islands.
Thesis, M.S. 1956, Iowa State College.
59 p. Library, Iowa State College, Ames.

Purpose.-- To determine what Protestant foreign missions have accomplished to help improve agricultural conditions in the Philippines.

Method.-- Information was secured from questionnaires sent to mission stations and institutions, from returned missionaries, from Filipino students, from magazine articles, and from Philippine Government reports.

Findings and Interpretations.-- Questionnaires were returned from 4 of the 7 mission stations in institutions which were conducting work in agricultural education or extension according to Agricultural Missions, Inc. Each of the four stations responding had at least a small amount of land used in its educational program. The facilities of the three largest institutions reporting (Central Philippines College, Mountain View College, and Silliman University) had investments in buildings and machinery ranging from $11,000 to $25,000 which were used in connection with their agricultural education work. On a basis of information from the questionnaires and other sources, the author drew the following conclusions:

1. Protestant missions have been respected and have been recognized for the contributions which they have made to agriculture in the Philippines.

2. Protestant mission stations have provided facilities for the education of many native youth for positions of agricultural leadership.

3. Protestant mission stations have provided help for rural people in many rural areas which the Government had not reached.

4. There has been cooperation between many Protestant mission stations and the Government in areas of extension and establishment of cooperatives.

5. Although a good start appears to have been made in the right direction, Protestant mission station personnel have recognized that much work remains to to be accomplished in agricultural education in the Philippine Islands.

ANDERSON, WILLARD RAYMOND

Implications for Adult Education in
Agriculture from Responses of Participants
in the Veterans' Farm Training Program in
the Central Region: I. Administration.
Thesis, M. S., 1952, Iowa State College.
93 p. Library, Iowa State College, Ames.

Purpose.-- The purpose of the study was to determine the administrative techniques and procedures used in the veterans' institutional on-farm training program in the Central region which may be effectively used with future young and adult farmer programs.

Method.-- A random sampling of 3,300 completed questionnaires from 550 veterans' training classes in the 11 participating States was used for final tabulation of data. Statistical treatment consisted of percentage and chi-square values.

Findings and Interpretations.-- More than 80 percent of the veterans interviewed in each of the 11 States were of the opinion that the training they received contributed more than the subsistence payments toward their making progress in getting started in farming.

More than 50 percent of the veterans in each State indicated that they would continue to take part in an educational farm program similar to the present one without subsistence pay if such a program were offered.

The responses of veterans showed that public schools through departments of vocational agriculture should be responsible for instruction in a future institutional on-farm training program. Other agencies that ranked high were the Veterans' Administration and State colleges of agriculture.

The majority of veterans preferred fewer than 100 hours of on-farm training per year for future adult farmer classes. More than 50 percent of the veterans in 6 States preferred more than 50 hours of on-farm instruction per year.

Fewer than 50 percent of the veterans recommended on-farm instruction at 1-week or 2-week intervals. A majority of veterans in all States except Missouri recommend weekly meetings with monthly meetings during busy seasons for classroom instruction.

A majority of veterans recommended that vocational agriculture instructors should give the instruction. Special instructors were preferred by a large number of veterans.

ANDERSON, WILLARD RAYMOND

According to the veterans, Federal funds would be the best single source of financial aid for adult farmer education. A majority of veterans preferred a combination of Federal funds with other funds, either State, local, or tuition. More than 50 percent of the veterans in each State indicated they would be willing to pay taxes for adult education programs in local schools.

The findings of the study showed considerable variance of opinions among veterans in the 11 States in regard to the problems of administration, an indication perhaps that it is necessary to adapt the implications of the findings to conditions within each State.

ARCHER, BEVERLY B.

Influence of High School Vocational
Agriculture on Participation of Graduates
in Organized Groups. Thesis, M. S., 1953,
Iowa State College, 103 p. Library,
Iowa State College, Ames.

Purpose.-- To determine the effectiveness of vocational agriculture as shown by the extent of participation in groups and leadership responsibilities assumed by male graduates of high schools offering vocational agriculture, and male graduates of high schools not offering such work during 1941 to 1952 inclusive.

Method.-- Twelve graduates were selected on a stratified sampling basis from each of 10 schools which had offered vocational agriculture and 12 were selected on a similar basis from each of 10 schools which had not offered vocational agriculture.

Each of the 240 graduates of the 20 schools, all of whom were farming at the time of the study, were interviewed by one of the four graduate students who cooperated in the study. Part of the schedule involved questions concerning the extent to which the high school graduates were following certain improved farming practices. The present study was concerned with the extent to which the students had assumed membership and leadership responsibilities in 27 organized groups commonly found in rural communities.

Findings and Interpretations.-- The 120 former students who were formerly enrolled in vocational agriculture participated in the 27 organized groups commonly found in rural communities to a significantly greater extent than the control group. A study of the participation of the aforementioned high school graduates in farm organizations and in other agricultural group activities showed highly significant differences in favor of the former vocational agriculture students. Former students of vocational agriculture held a significantly greater number of positions of leadership in various church organizations than former students in the control group.

ARONSON, RONALD FRAZIER
Relation of 4-H Club Participation to Continuation of Out-Of-School Education. Thesis, M.S., 1958, Iowa State College. 84 p. Library, Iowa State College, Ames.

Purpose -- The major purpose of this study was to determine the relation of 4-H club participation to the continuation of out-of-school agricultural education as measured by participation in educational organizations and groups, sources of agricultural information, selection of family and farm goals, adoption of new farming practices and economic success in farming.

Method -- The present study was based on data which had been obtained for the Iowa Experiment Station Project 1278 to establish a benchmark for the evaluation of the Iowa Extension Farm and Home Development Program. The benchmark survey involved 442 young farm couples selected at random from communities within 10 Iowa counties. The survey was conducted in 1955 and 1956. Data secured from 440 of the men were used in this present study.

Findings -- The number of men, expressed in percentages, in this study who had participated in agricultural education programs follow: (1) high school agriculture classes, 42.7%; (2) 4-H clubs, 29.8%; (3) veterans on-farm training classes, 26.1%; (4) adult farm schools, 16.3%; and (5) college agriculture classes, 1.5%. Of the 440 men 61.5% had graduated from high school. It is apparent from the low percentages that additional attention must be given to these educational programs if farm operators are to be adequately trained in the future.

The former 4-H club members in this study were found to have a number of characteristics which identified them from those who had not participated in the program. The former members tended to be better educated, more active in community affairs and more interested in working and associating with other people.

A relation between 4-H club participation and continuation of out-of-school agricultural education was found among the men of this study. Those who had had 4-H club experience tended to score higher than those who had not participated, on all of the measures that were tested in this study. There were 10 instances, however, in which this relationship was not significant. The objective of arousing worthy ambitions and a desire to continue to learn remains an essential portion of the work of the 4-H club program.

BALL, WILBUR PERRY

Influence of High School Vocational Agriculture on Farm Mechanics Practices Used by Participants in the Veterans Farm Training Program, Dissertation, Ph. D., 1956, Iowa State College. 150 p. Library, Iowa State College, Ames.

Purpose.- - The purpose of this study was to determine the effectiveness of farm mechanics instruction in departments of vocational agriculture, as indicated by the extent to which selected farm mechanics activities had been performed on farms of high school graduates who were enrolled in the veterans farm training program.

Method.-- A farm mechanics schedule which included information about various jobs, skills, decisions, and equipment was prepared and administered to veterans enrolled in 46 classes selected at random throughout Iowa. The sample, which was selected from approximately 1,100 veterans enrolled in the 46 classes, consisted of 357 farmers who had been graduated from high school. All of the 119 useable schedules of vocational agriculture graduates and the 238 schedules selected at random from approximately 370 nonvocational agriculture graduates were used to make up the total sample in the study.

Findings and Interpretations. -- A greater proportion of vocational agriculture than nonvocational agriculture graduates reported having machinists' vises, woodworking vises, power griders, and oxy-acetylene welders available on their farms. However, the reverse was true for eight other items of farm shop equipment about which information was requested.

When high school graduates were grouped on a basis of type of high school attended without any classification according to farming status or according to crop acres operated, only a few significant differences were found.

When high school graduates were grouped on a basis of type of high school attended and on a basis of present status in farming, of the 56 farm mechanics items, differences were revealed in 3 items significant at the 1 per cent level, in 8 items significant at the 5 per cent level, and in 3 approaching significance. The differences disprove the null hypothesis that there were no differences between the two groups of high school graduates that could be attributed to enrollment in vocational agriculture.

Responses of high school graduates to 56 items involving farm mechanics actities did not yield evidence to disprove the null hypothesis that there were no differences between vocational agriculture and nonvocational agriculture graduates when no classification was made of the two groups.

BALL, WILBUR PERRY

Former vocational agriculture students who were in the group classified as having status in farming were found to be performing a proportionately greater number of recommended farm mechanics activities in certain areas than former non-vocational agriculture students.

BARRETT, EDWARD W.

Farming Status and Practices of Negro
Farm Operators in Mississippi County,
Missouri. Thesis, M. S., 1957, Iowa State
College. 89 p. Library, Iowa State College, Ames.

Purpose.-- To ascertain the current farming status and practices of Negro farm operators of Mississippi County, Missouri as a basis for the improvement of the agricultural education program in the county.

Method.-- A farm-to-farm survey was made of the 80 Negro farm operators (owners and renters) in the county by the investigator and his assistants. The survey covered such areas as personal characteristics, land utilization, crop production, livestock, improved farming practices, condition of farm home, and conveniences and appliances.

Findings and Interpretations.-- The mean age of the owners was 56.5 years and 40.6 years for the renters. The mean number of children was 3.9 for owners and 3.4 for renters. There were a mean of 1.4 children per family in school. The highest formal education completed by the farm operators was that of two owners, one completed the tenth grade and the other the twelfth grade. The mean acreage operated by the 80 farmers was 82.2 acres. Seventy-one per cent of the owners farms and 90 per cent of the renters farms were in cultivation. Sixty-four of the 77 cotton growers produced less cotton per acre than the county average. Fifty-five farm operators grew soybeans; the yield was from 5 to 35 bushels per acre. Seventy-seven operators planted corn ranging from 2 to 80 acres; the average yield was 33.8 bushels per acre which was below the county average. Only 42 farmers used fertilizer; eight used no more than 1,000 pounds. An average of 26 pullets and hens, and 94 baby chicks were raised. Pigs weaned per farm ranged from 4 to 30 pigs. Thirty-one farmers did not have any cows; 38 had only one cow. Sixty-six per cent carried out the practice of feeding starter and grower mashes to baby chicks, 44 per cent vaccinated pigs for cholera, 50 per cent separated their sows before farrowing time and occasionally gave four weeks rest to their cows. Only 12 operators used farm production records. Fifty per cent of the farm homes were in good condition, but all had outdoor toilets. Seventy-eight per cent had radios, and 43 per cent had television sets. Most of the farmers are not inclined to adopt readily improved methods and practices of farming.

BATEMAN, SIMEON DAVID
Sources Of Agricultural Information Used
By Radio Stations, Television Stations And
Daily Newspapers In North Dakota. Thesis,
M.S., 1959, Iowa State College. 68 p.
Library, Iowa State College, Ames.

Purpose -- This study concerns itself with the sources of information dealing with 10 farm operations used by editors of North Dakota radio stations, television stations, and daily newspapers.

Method -- Data were collected following personal contacts with the editors of each of the respective media outlets, who completed an information schedule. Editors of all of these media outlets were contacted, and all provided information. The universe included 16 radio station editors, nine television station editors, and 10 daily newspaper editors. The data collected were in terms of the editors' usual usage of releases on each of 10 farm operations by 12 potential sources of releases, plus an "other" classification for a write-in source.

Findings -- It was found that the North Dakota Agricultural College agricultural releases accounted for 41% of the weighted rating for the 10 farm operations. The second-ranking source was county extension agents, accounting for 37% of the total weighted rating. Other sources ranged from 6% to 2% of the weighted rating.

With 3 exceptions, dealers and service people were listed as the third-ranking source for information on the 10 farm operations studied. Those exceptions were the Soil Conservation Service as a source of information on pastures, the Agriculture Stabilization and Conservation Committee as a source for information on on-farm storage of grain, and the experiment stations as a source for information on recommended varieties of grain. The highest rating for dealers and service people as a source for information on any specific farm operation was 11%.

BEAR, WILLIAM FORREST

Relation of High School Vocational Agriculture to Mechanical Farm Jobs Performed by Graduates, Thesis, M.S., 1959, Iowa State University of Science and Technology, 113 p., Library, Iowa State University of Science and Technology, Ames.

Purpose.-- The purpose of this study was to determine the relation between the establishment of farm shops and the farm mechanics jobs used by high school graduates with type of high school training, farm ownership status, size of home farm, time of high school graduation and the gross product of the graduates' farms in 1955. This study one of a series of studies, was financed in part by the Iowa Agricultural Experiment Station Project 1253.

Method.-- Graduates were selected from 45 schools in the central cash grain and eastern livestock farming areas of Iowa which had offered vocational agriculture during 11 of the 12 years between 1943 and 1954. These graduates were paired with graduates who attended high schools not offering vocational or general agriculture from comparable schools in the same farming areas. One hundred and twenty graduates were selected for the study and were stratified according to type of training, farm ownership status of the parents, period of graduation and size of home farms of the graduates at time of graduation.

Findings and Interpretations.-- Small differences existed in the number of shops, distribution of heated shops and facilities to work on a car or tractor among the graduates stratified according to type of training, farm ownership, status of parents, size of home farm, and period of graduation.

Vocational agriculture graduates on an average owned more tools than nonvocational agriculture graduates. There were no significant correlations, when computed by Pearson product-moment, between total gross product and number of tools owned by graduates. Graduates with heated shops, however, had a higher percentage of the tools than did graduates with unheated shops. In each farm mechanics area the average number of farm mechanics jobs performed increased as tool ownership increased.

Analysis of the average completion scores of graduates for 42 farm mechanics jobs was computed by chi-square. The following differences were significant at least at the five per cent level:

(a) Vocational agriculture graduates had higher completion scores than nonvocational agriculture graduates for two skills;

(b) Sons of owners had significantly higher completion scores than sons of nonowners for five skills; and

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(c) 1943 to 1948 graduates had significantly higher completion scores than 1949 to 1954 graduates for one skill.

Size and heat in the shops influenced the graduates' performance of farm mechanics jobs even though many of the farm mechanics jobs were not dependent upon shop facilities. Vocational agriculture graduates generally completed a higher average number of the farm mechanics jobs than did the nonvocational agriculture graduates in all but two of the total gross product groups. No relationship was found between farm mechanics jobs completed by graduates and total gross products.

Data from this study did not indicate that farm mechanics instruction as provided in high school vocational agriculture greatly influenced the farm mechanics practices used by graduates, therefore, additional consideration should be given to strengthening farm mechanics work offered in the Iowa high school vocational agriculture programs.

BEAR, WILLIAM FORREST

Matriculation, Progression and Employment
Status of Agricultural Engineering Graduates
from the Iowa State University of Science and
Technology. Dissertation, Ph.D., 1963. The
Iowa State University of Science and Technology.
184 p. Library, The Iowa State University of
Science and Technology, Ames.

Purpose.— To determine changes in the teaching and research programs of the Department of Agricultural Engineering that would be desirable. Home and parental background information was sought in order to better understand the agricultural engineer, his interests and capabilities. The number of semesters of high school courses such as vocational agriculture, science and mathematics were obtained to determine the courses that significantly influenced college quality grade point average. Relationships significant to income, area and location of employment, job classification and participation in activities were investigated. The graduates were asked to evaluate courses they had taken and recommend any changes they thought would be effective.

Method. — The 386 graduates who participated in this study had received the Bachelor of Science degree in agricultural engineering between July 1, 1942 and July 1, 1962. Data were obtained from the graduate's permanent record, his interview form and a questionnaire mailed to each graduate. Data were recorded on code sheets, transferred to International Business Machine cards and frequency counts were obtained on the 402 and coefficients of correlation on the 7074 machine.

Findings. — Eighty-one percent of the graduates had been farm-reared and 80 percent of the parents were farm owner-operators or managers. Parents financed the college education of 32 percent of the graduates, and family members influenced college attendance of 41 percent of the graduates. The vocational agriculture instructor was more frequently mentioned than other high school teachers as having had influence on career selection. Thirty-five percent of the graduates had taken vocational agriculture during high school and 55 percent of this group had attended high schools with less than 200 enrolled. Fifty-three percent of the graduates who had had vocational agriculture enrolled in the Power and Machinery and 30 percent in the Soil and Water option. A larger percentage of the graduates who had had vocational agriculture became aware of the agricultural engineering profession during high school than other graduates.

The best predictor of first quarter college quality point average was the high school point average and the best predictor of third quarter college point average was the first quarter quality point average, whereas the best predictor for the graduate's cumulative college

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quality point average was the third quarter quality point average. Semesters of mathematics and science courses in high school were positively correlated with college grade points. Cumulative college quality point average was the best single predictor for first employment income.

Seventy-eight percent of the graduates recommended increased emphasis on statistics courses. Increased emphasis was also recommended for courses in journalism, English, speech and mechanics.

Thirty-two to 45 percent of the graduates between first and 1962 employment were employed in design and/or testing. More graduates were employed in the farm equipment industries than in any other single employment area. Graduates in the Soil and Water Option area were more frequently first employed and remained employed in their option area than did graduates in the other option areas.

Twenty-six percent of the graduates continued study beyond the Bachelor of Science Degree. In 1962, 22.5 percent of the graduates were licensed professional engineers, and 58.5 percent were members of the American Society of Agricultural Engineers.

BEITZ, MYLES. R.
Factors Relating to Attendance of Farmers in
Agricultural Education Meetings. Field Study
M.V. Ed., 1961, Iowa State University of Science
and Technology. 48 p. Department of Education,
Iowa State University of Science & Technology, Ames

Purpose. -- The purpose of the study was to collect information concerning factors that affect the attendance of farmers in Muscatine Community School District at Agricultural Education Meetings.

Method. -- High school vocational agriculture students administered questionairres to 159 farmers.

Findings. -- Membership in Farm Bureau, lodge and church tended to improve attendance of farmers at agricultural extension and agronomy meetings, but had little effect on attendance at adult farmer evening school or agricultural extension specialist meetings. Farmers with two or three children under 15 years of age attended adult farmer class meetings to a greater extent than farmers with fewer, more or older children.

Farmers who operated farms of 281 acres or more attended a larger number of agricultural education meetings than did farmers who operated smaller farms.

The preferred method of presenting material in agricultural education meetings was to speak on the subject for one-half of the period and than answer questions. Other methods recommended in order of preference were informal discussion, field trips, films, demonstrations, shop work and use of panels.

High priority subjects for agricultural education meetings were (1) Farm Management, (2) Farm Records, (3) Fertilizers, (4) Soil conservation, (5) Farm Law and (6) Government Programs. Farmers with vocational agriculture backgrounds placed more emphasis upon farm management and record analysis than did other farmers.

Those surveyed indicated that television had little effect on their attendance at agricultural education meetings. A combination of post cards news acticles and use of telephone was the best means of notifying farmers of agricultural education meetings.

BENDIXEN, JOE FRANCIS
Relation of High School Vocational Agriculture
to Achievement in College Courses in Animal
Science. Unpublished M.S. Thesis, 1963.
Library, Iowa State University, Ames.

Purpose -- The primary purpose of this study was to determine the relationship between semesters of high school vocational agriculture and achievement in college courses in animal science at the Iowa State University of Science and Technology. A secondary purpose was to discover the relationships among some of the predictors commonly used in counseling students in the College of Agriculture.

Method -- Selection of the sample for this investigation involved male students who matriculated in the freshman class in the fall quarter of 1955 in the College of Agriculture at Iowa State University, and completed two selected college courses in animal science. Complete data were available for 321 cases which were then analyzed in the study.

Findings -- Findings in this study indicate that the high school quality point average and first quarter college quality point average would be the most reliable predictors of the tendency to graduate from Iowa State University. Although no statistical positive significance was found between the relation of high school vocational agriculture to achievement in college courses in animal science, evidence presented did indicate that vocational agriculture students generally do as well or better than do nonvocational students in the introductory animal science courses at the Iowa State University of Science and Technology.

It was found that 23.7 percent of the 97 students who had seven to eight semesters of vocational agriculture received less than a 2.00 final cumulative college quality point average. The nonvocational agriculture group of 110 students had 29 percent with less than a 2.00 average. Quality point averages in introductory animal science of 3.00 and above were obtained by 41.4 percent of the group who had no vocational agriculture and by 48.5 percent of the group who had seven to eight semesters.

When comparing the members of the two groups who had a quality point average of over a 3.00 point in the advanced animal science courses, the students who had no vocational agriculture had 41.7 percent of their students in this classification, whereas 40.7 percent of the 59 students who had vocational agriculture had quality point averages of 3.00 or above in advanced animal science courses.

There was a highly significant negative correlation between the semesters of vocational agriculture and high school science completed by students.

BENNETT, WILLIAM C.
Competencies in Soil Management and Use of
Fertilizers Needed by Farmers. Thesis, M.S.,
1965, Iowa State University of Science and
Technology. 91 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose — To determine the competencies in soil management and use of fertilizers needed by farmers and the extent that they possessed the competencies.

Method — A panel of 15 specialists developed a list of 46 competencies, 24 related to soil management and 22 to the use of fertilizer. The list in questionnaire form was submitted to 314 farmers who had been named outstanding farmers by the Iowa Junior Chamber of Commerce. Each farmer indicated the degree each competency was needed and possessed using a 10-point scale. Data from the first 200 usable questionnaires received were used in the study.

Findings — Mean scores for needed competencies ranged from 7.05 to 4.09, while mean scores for possessed competencies ranged from 6.37 to 3.56. The highest ranked competency for both the degree needed and degree possessed was the responsibility for maintenance of soil productiveness for future generations. The mean score needed for this competency was 7.05. The ranked mean scores for each of the other top ten competencies were as follows: (2) control of weeds and soil insects 7.00, (3) develop a farm plan for maximum use of soil resources 6.93, (4) economic principles in soil management 6.88, (5) balanced nutritional needs of crops 6.78, (6) safety in transfer of liquid and anhydrous fertilizer from bulk storage to the applicator 6.78, (8) plan an economical fertilization program 6.77, (9) proper use of fertilizer in good soil management 6.75, and (10) economic principles of fertilization 6.72.

A comparison of the ten most highly ranked needed competencies and control variables resulted in three being significantly correlated at the one percent level. They were: educational level of the operator and the economic principles of fertilization; gross income, $10,000 increments and balanced nutritional needs of crops; and educational level of operator and plan an economical fertilization program.

The need for additional training for present farm operators is evident when the outstanding farmer group that was studied indicated a need for more competence than they possessed in 44 of the 46 competencies that were identified and evaluated.

BETTS, MERLE E.
Probability of Mortality in First Quarter
Chemistry For Students of Agriculture at
Iowa State College. Thesis, M.S., 1952,
Iowa State College. 60 p. Library, Iowa
State College, Ames.

Purpose -- The major purpose of this study was to prepare tables from which a given student's probability of successful completion of Chemistry 101, the beginning course in chemistry, at the Iowa State College.

Method -- The investigation was limited to male students who enrolled in the Division of Agriculture at the Iowa State College in the fall quarter of 1950. Information gathered from the Registrar and freshman chemistry offices included the following:

1. High school average.
2. Carnegie units in high school agriculture.
3. Credit or lack of credit in high school chemistry.
4. Total score on ACE.
5. Students who dropped from college prior to taking Chemistry 101.
6. Final work in Chemistry 101.

Findings -- The ACE total score and high school average have been found useful in the forecasting of attrition-survival in Chemistry 101, regardless of the definition of attrition-survival chosen. The usefulness of chemistry credit from high school was indicated, but less pronounced, for students in agriculture of whom few have taken Chemistry 101 during the first quarter in college, than has been found in a previous study for students in science and engineering who take Chemistry 101 during the first quarter of the freshman year.

BETTS, MERLE E.

Differential Characteristics Related to Later Occupation of Graduates from the Division of Agriculture at Iowa State College. Thesis, Ph. D. 1953, Iowa State College. 85p. Library, Iowa State College, Ames.

Purpose.-- To determine characteristics related to success in later occupation as measured by earned income, and to determine characteristics related to occupational choice of agricultural college graduates.

Method.-- This is a study of 500 graduates of the Iowa State College Division of Agriculture; 100 graduates in each of the occupational areas of sales, journalism, extension, farming, and college teaching and research. Data were obtained from questionnaires returned by these graduates who were among the 86 percent responding to mailed requests sent to 4,199 graduates of 12 departments in the division during the 21 years from 1931 to 1952. Additional information was obtained from college records.

Findings and Interpretations.-- There were widely varying earned income values for graduates in the five occupations. Predicted maximum earned income 30 years after graduation varied from $5,577 for graduates in extension to $9,374 for graduates in journalism. The only characteristics which were revealed to have a significant relationship to earned income were college grade average and communications grade differential. For graduates engaged in college teaching and research, those with higher college grade average had a tendency to be in the higher earned income group. Graduates who did less well in communications subjects have a tendency to make higher earned incomes than the graduates who do better in communications than in other subjects. No differences could be shown between high and low earned income groups with regard to farm or nonfarm residence prior to college. A series of tables were prepared from which counselors could obtain scores for an individual, evaluating similarity to graduates already established in occupations.

It was suggested that information concerning interests and personality traits of students could be assembled as college routine. That information, incorporated with the characteristics used in this study, might provide a more accurate method of determining similarity of agricultural college graduates to occupational pattern.

BISHOP, JOHN EDWARD FRANCIS

Factors Influencing Occupational Choices of
Winterset Vocational Agriculture Graduates.
Thesis, M.S., 1962, Iowa State University of
Science and Technology. 116 p. Library,
Iowa State University of Science and Technology,
Ames, Iowa.

Purpose. -- The purpose of this study was to determine those factors which influenced the occupational choices of vocational agriculture graduates of the Winterset, Iowa Community High School.

Method.-- The names of the vocational agriculture graduates, as well as their class quartile rank, semesters of vocational agriculture, mathematics and science, and their participation in extra-curricular activities were obtained from the permanent records of the Winterset public schools.

Additional data were obtained from graduates by the use of a survey questionnaire.

Findings. -- Regardless of the occupation, the majority of the graduates reported vocational agriculture was of "Some" to "Very Much" value to them in the selection of their present occupations, whereas only the majority of those graduates who reported farm operator and farm labor as their occupation were influenced by their supervised farming programs.

A larger percentage of the graduates whose parents farmed 360 acres, or more, reported farming as their first occupation than did those graduates whose parents farmed 119 acres or less.

Reported present occupations of the graduates were as follows: 25.57 per cent were farm operators, 25.82 per cent were craftsman or operators, 24.18 per cent were professional or managerial, 10.44 per cent were in clerical or sales, 7.97 per cent were in military service, and 5.77 per cent were in service or labor occupations.

The educations of fathers of the graduates were more influential than were the educations of the mothers on the selection of an occupation.

Greatest influence from membership in the Future Farmers of America organization and 4-H Clubs was on those graduates who reported farm operator and farm labor as present occupations.

Mathematics and science were most influential on those graduates who had attended college.

More than 29 per cent of the graduates had attended college, and about 12 per cent completed four or more years. Nearly 41 per cent of those graduates had attended the Iowa State University of Science and Technology, and more than 25 per cent had attended out-of-state colleges or universities.

BISHOP, JOHN EDWARD FRANCIS

Nearly 75 per cent of the graduates were living within the State of Iowa, and 95 per cent of those graduates who reported farm operator lived within the state.

More than 74 per cent of the farm operators had planned to farm while in high school. Approximately 49 per cent of the 368 graduates were currently farming or employed in an agriculturally related occupation.

BITTNER, RICHARD H.

Relationship Between High School Characteristics and Status of Farm Reared Male Graduates in Non-farm Occupations. Thesis, M.S., 1958, Iowa State College. 87 p. Library, Iowa State College, Ames.

Purpose. -- To determine what relationships exist between the status of farm-reared male high school graduates in non-farm occupations and rank in graduating class, vocational agriculture training, and participation in activities.

Method. -- Data were collected from 320 graduates of 40 Iowa high schools located in the central cash grain and eastern livestock farming areas. Twenty of the high schools had offered vocational agriculture at least 11 years during the 12 year period from 1943 to 1954, and 20 of the high schools had not offered vocational agriculture during that period. The schools were paired on the basis of various school and community characteristics.

From each school four graduates were selected randomly who had been graduated during the period from 1943 to 1948 and four graduates were selected randomly who had been graduated during the period from 1949 to 1954. Graduates selected had the following characteristics: were employed in non-farm occupations, were not college students or graduates, had received at least three years of vocational agriculture training if they had been selected from a vocational agriculture school, were living on farms of at least 40 acres at time of graduation, had parents who received at least one-half of their total income from farming, and were not in military service.

Three criteria were used as measures of occupational status: the degree of satisfaction each graduate expressed with his present occupation, the annual earned income each graduate received in 1958, and the rating of each graduate's occupation on the North-Hatt Scale of Occupational Prestige.

Findings and Interpretations. -- Graduates who had received vocational agriculture training earned an average of $225 more than graduates who had not received vocational agriculture training. They had an average occupational prestige rating slightly higher and a degree of satisfaction score slightly less than had the graduates who had not received vocational agriculture training. None of these differences was statistically significant.

The positive correlation between rank in graduating class and degree of expressed satisfaction was significant at the five per cent level. Other correlations between rank in graduating class and each of the other criteria were not significant. No significant correlations were found to exist between degree of participation in activities and each of the criteria of status.

It was concluded that vocational agriculture training proved to be as valuable as other high school courses which might have been substituted in its place for the farm-reared male high school graduates investigated who entered non-farm occupations.

BLAKE, DUANE L.

Influence of High School Vocational Agriculture
on the Rate of Establishment of Graduates in
Farming. Thesis, M.S. 1956, Iowa State College.
73 p. Library, Iowa State College, Ames.

Purpose. -- To determine the relationship of high school vocational agriculture to the rate of establishment of graduates in farming.

Method. -- This was one of nine studies being conducted cooperatively to evaluate various aspects of the high school program in vocational agriculture. A sampling of 20 schools which offered vocational agriculture during at least 11 of the 12 years from 1943 through 1954 were paired with a sampling of the 20 schools that did not offer such work during the same period. By means of personal interviews information was obtained from 320 of the graduates (eight per school) concerning crop and livestock production. Dollar values were used to determine the total volume of production in terms of gross product for each graduate during 1955. Gross product as used in this study was defined as the gross production of the farm minus the livestock and feed purchases. An analysis of covariance was used to compare the regression of the total gross product on number of years farmed by the vocational agriculture and nonvocational agriculture groups.

A significant difference existed among vocational agriculture schools used in the study of soil type, religion, nationality and other general characteristics. However, a test of significance showed that a successful job of pairing vocational agriculture and nonvocational agriculture schools had been accomplished with respect to these factors.

Findings and Interpretations.-- There was a highly significant difference in the rate of establishment in farming as measured by size of gross product in favor of the vocational agriculture graduates. During the 12-year period the vocational agriculture graduates received a $532 increment on their total gross product each additional year that they farmed as compared to a $357 increment for the nonvocational agriculture graduates. A mean total gross product of $7898 for 1955 was found for the vocational agriculture graduates as compared to a mean total gross product of $6391.25 for members of the control group. Hence, the mean total gross product of the vocational agriculture graduates for the year 1955 exceeded the mean total gross product of the nonvocational agriculture graduates by $1506.75.

Of the 160 members of the vocational agriculture group, 142 had attained the status of farm operator, whereas only 126 of the members of the control group had achieved this status. Members of the vocational agriculture group were found to be farming more crop acres than the members of the control group.

BLAKE, DUANE L.

Relationship of High School Training in
Vocational Agriculture to Subsequent
Establishment in Farming and Participation
in Organized Groups. Dissertation, Ph.D.,
1963. Iowa State University. 235p. Library,
Iowa State University, Ames, Iowa

Purpose. -- To determine the relationship of high school vocational agriculture, participation in organized groups and establishment in farming.

Method. -- This study of relationship of high school training in vocational agriculture to subsequent establishment in farming and participation in organized groups included 320 male graduates from 20 pairs of randomly drawn high schools located in the north central cash grain and the eastern livestock areas of Iowa. Twenty of the randomly drawn high schools located in the north central cash grain and the eastern livestock areas of Iowa. Twenty of the randomly drawn schools had offered vocational agriculture during at least eleven of the twelve years from 1943 through 1954. They were paired with schools that did not offer vocational agriculture during the same period. All of the 320 high school graduates included in this study were farming or employed on the farm in 1955. Personal interviews were used to obtain the original data for this investigation. Data for the 1963 follow-up portion of the study were obtained by mail questionnaire.

Findings. -- When compared on the basis of overall participation in all the farm organizations, the high school graduates who had parents that were classified as owners had an advantage over the graduates whose parents were classified as non-owners. The mean participation scores increased as the farmers became established and had been farming for a longer period of time. Vocational agriculture graduates participated more in farm organizations than the nonvocational agriculture graduates.

The mean participation scores in youth organizations showed a more positive relationship for the vocational agriculture graduates than for the nonvocational agriculture graduates when related with size of home farm, farming status, farm management practices used in farm records, farm management practices used and total gross product.

The mean participation scores in farm organizations showed a more positive relationship for the vocational agriculture graduates than for the nonvocational agriculture graduates when related with farm management practices used and total acres farmed. The same was found to be true when mean participation scores in cooperative organizations and in young and adult farmer classes were related with farm management practices used by [illegible] graduate.

BLAKE, DUANE L.

The total mean scores in all organizations revealed a more positive relationship for the vocational agriculture graduates than for the non-vocational agriculture graduates when related with farming status, farm management practices used in farm records, farm management practices used and type of records used.

BROWN, ALAN R.

Leadership Activities of Former "Chapter"
and "State Farmers" in the Iowa Association,
Future Farmers of America. Thesis, M.S. 1960,
Iowa State University of Science and Technology.
89 p. Library, Iowa State University of Science
and Technology, Ames.

Purpose. -- To determine the differences existing between the leadership activities of former Future Farmers who received the State Farmer Degree and their classmates who received only the Chapter Farmer Degree and to determine the leadership accomplishments of the former members in comparison with the aims, purposes and requirements of vocational agriculture and the Future Farmers of America.

Method. -- Five Iowa Future Farmers who had received the State Farmer Degree for each year from 1929 to 1953, inclusive, were selected. A Chapter Farmer classmate for each State Farmer was also selected. One hundred pairs were completed.

Information was collected regarding the home and farm at the time of the member's graduation from high school. Post-graduation activities were investigated. Leadership activities for the past 12 months were compared.

Findings. -- Former State Farmers were significantly higher than the Chapter Farmers for: (1) larger home farms; (2) more years vocational agriculture; (3) more years Future Farmers membership; (4) larger percentage attended college; (5) larger percentage of college students enrolled in agricultural curriculum; (6) higher value placed on Future Farmer and vocational agriculture experiences for personal, family and community living. State Farmers had significantly more leadership participation in business and industry, total occupations, political, school, community service, religious and recreational activities. They also had a significantly higher mean for agricultural, business and industry, and political leadership activities.

The former State Farmers rated higher, although not significantly, for: (1) parental ownership of farm; (2) fewer older brothers; (3) fewer brothers and sisters; (4) greater percentage agriculturally employed; (5) older age at marrying; (6) number of leadership activities related to agriculture and lodges; (7) higher mean for leadership in total occupations, religious, school and lodge activities.

The former Chapter Farmers had significantly more veterans' on-job and on-the-farm training and a higher mean for recreational leadership. No significant difference was found in the military rank attained.

It was concluded that the leadership aims and purposes were being fulfilled. The State Farmers were required to achieve more of the aims and goals. The study revealed that after high school graduation the former State Farmers consistently rated higher than their Chapter Farmer classmates in leadership activities.

CARLSON, KEITH RANSOM
Competencies Needed by Farm Credit Agency
Employees. Thesis, M.S., 1965, Iowa State
University of Science and Technology. 82 p.
Library, Iowa State University of Science
and Technology, Ames.

Purpose: The purpose of this study was to determine the competencies needed by farm credit agency employees. These competencies were defined as understandings or abilities that are needed by successful employees of production credit associations, federal land bank associations, and outside representatives of state and national banks in Iowa.

Method: A panel of nine men was used to select the competencies that were included in the questionnaire. Twelve understandings and 21 abilities (33 competencies) were combined with several control items to constitute the questionnaire. The questionnaire was mailed to all of the Iowa banks that employed outside farm representatives, all production credit association managers, and managers of the federal land bank associations in Iowa.

Findings: Of the 33 competencies used, 13 were of a definite agricultural origin, while the remaining 20 were of a more general credit nature. The first 100 usable questionnaires were used out of the 133 sent out. The men who filled out the questionnaires rated each competency by the degree they felt each was needed and degree they possessed each competency.

The 10 competencies that ranked the highest in need were: (1) recognize poor and good financial management, (2) converse easily with farmers, (3) determine repayment ability and desire, (4) recognize ability to handle credit, (5) set up loans so that they fit the individual farm, (6) set basic credit guidelines used for loan analysis, (7) evaluate character, (8-9) work basic arithmetic, (8-9) understand loan security (chattel and real estate) and (10) advise farmers how to use credit.

The 10 competencies that had the highest ranking mean possessed scores were: (1) converse easily with farmers, (2) figure net worth, (3) work basic arithmetic, (4) recognize poor and good financial management, (5) set up loans so they fit the individual farm, (6) determine repayment ability and desire, (7) recognize ability to handle credit, (8-9) understand loan security (chattel and real estate), (8-9) evaluate character, and (10) advise farmers how to use credit.

The farm credit agency employees evaluated the degree needed higher than the degree possessed for 31 of the 33 competencies. The two that had a higher degree possessed than degree needed rating were the understanding of different varieties of crops and the ability to figure depreciation.

The need and opportunities in the farm credit field should be shown to the high school students. The value of a farm background and training in vocational agriculture should be stressed. The encouragement to attend college and the higher salaries for those students who enrolled in vocational agriculture should not be overlooked during guidance activities of the vocational agriculture instructor. Training in the 33 competencies should begin in the high school with as much practical experience as possible. Additional training by the agricultural colleges or the banks themselves would also appear in order for the farm credit employees.

CARSTENS, HAROLD L.
Opportunities for Beginning Farmers in the
Alta Community School District. Field Study,
M.Ed., 1965, Iowa State University of Science
and Technology. 68 p. Department of Education, Iowa State University of Science and
Technology, Ames.

Purpose -- To discover the opportunities for establishment of beginning farmers in the Alta (Iowa) Community School District.

Method -- Information was obtained through personal interviews and the use of a schedule form. A total of 270 (90 percent) farm operators were interviewed.

Findings -- The mean age of farm operators in the district was approximately 45 years. The 53 operators who were 56 years or older will most likely retire in the next ten-year period. Of the 270 farm operators in the district, 138 owned land and 47 of these owned less than 81 acres. A total of 198 of the farmers operated some land as tenants. As the age of the operator increased, the amount of land rented decreased. It was found that 174 farmers operated less than 241 acres and 89 of these men operated less than 161 acres. Seven of the 12 operators 66 years of age and over had total farm operations of less than 161 acres.

About 27 percent of the operators in the study had not progressed past the eighth grade in school; 64 percent had attended high school. More than 56 percent of the operators had been graduated from high school, but less than two percent were college graduates.

Nearly 83 percent of the operators were not employed off farm. There were 64 operators who indicated they plan to retire from farming for one reason or another during the next ten-year period. Not considering deaths, 6.4 replacements would be needed if the number of farms remain constant.

Opportunities for employment as a hired hand appear very limited as only eight operators used hired help for nine or more man-months during the year.

Approximately 33 percent of the operators were farming 160 acres or less, 49 percent were farming 161 to 320 acres, and 18 percent were operating farms of 321 acres or more. There were 11 operators who had farmed from 21 to 40 years who owned more than 240 acres. Of the 18 operators who had been farming ten years or less, none, or 50 percent, owned 80 acres or less.

Twenty-four, or about 20 percent, of the 121 sons away from home were farming. About 30 percent were either in farming or in ag-related occupations. Fifty-three operators who were 56 years old and older reported only 18 sons at home. Forty had no sons at home.

It was estimated that approximately seven operators would leave the farms each year for the next ten years. Because of farm consolidation, about 3.5 farms would be eliminated, leaving about 3.5 replacement farmers needed each year. It was expected that there would be approximately six young men graduating from vocational agriculture each year in the district.

CATHEY, GEORGE W.

Factors Affecting Farming Programs of
1952 Arkansas State Farmers in Future
Farmers of America. Thesis, M.S., 1953.
Iowa State College. 105 p. Library, Iowa
State College, Ames.

Purpose. — To obtain information regarding the supervised farming programs of the 120 boys who received the State Farmer Degree, and to determine the relationship between the scope of the farming programs and the following factors: leadership and cooperative activities; grade point in school; type of farming of boys' parents; number in the family; number of years of vocational agriculture; and farming opportunities afforded the boys.

Method. — Copies of the "Application for Arkansas Farmer Degree" were obtained from the files of the Executive Secretary of the Arkansas Association of the FFA, located in Little Rock, Arkansas. Only the 120 applications that had been approved were used as a source of information. The information was tabulated under the following headings: Annual labor income; net worth; number of productive projects; number of improvement projects; number of supplementary practices; farming program score; examination score; farming opportunity score; leadership and cooperative activities score; grade point; number of years of vocational agriculture; type of farming of parent; and size of the family. Each of the first seven items was compared with each of the last six to show the possible effect of certain factors upon the farming programs of the boy.

Findings and Interpretations. — Only 1.1 percent of the total membership were awarded the State Farmer Degree. These were fairly evenly distributed over the State. Considerable variation was found within the factors considered as affecting the farming programs. These variations follow: Ages varied from 14 to 19; family size from 3 to 14; grade point from 1.04 to 3.77; activities score from 95 to 225; farming opportunity score from 50 to 96.

Variation within the phases of the farming programs were as follows: labor income from $117.95 to $4,236.74; net worth from $250.00 to $22,308.50; productive projects from 1.00 to 6.67; improvement projects from none to 12; supplementary practices from 0.67 to 10.50; supervised farming score from 90 to 280; and examination score from 66 to 194.

Good farming opportunities, and high leadership and cooperative activities were the two factors associated most with the items that went to make up good supervised farming programs. Grade point in school and livestock type of farming showed some association, but to a much lesser degree than the two factors previously mentioned. The number of years of vocational agriculture training, and the size of the family showed the least association with good supervised farming programs.

CATHEY, GEORGE W.

The findings of this study seem to indicate that, all factors considered, the 1952 Arkansas State Farmers were outstanding in their programs of vocational agriculture. However, there were some few individuals who had programs that were weak in certain respects. Teachers of vocational agriculture can do much toward producing more State Farmers and improving the quality of the State Farmers within the State of Arkansas. These may be accomplished by improvement of those factors of the boy which are associated with good Future Farmer Programs; namely, home farm conditions, leadership and cooperative activities, and scholarship.

Possibly some changes could be made in the policy of selecting State Farmers. Less weight should be given to exceptionally high investments in farming. More consideration should be given to the candidate's home farm situations, particularly when a lack of opportunity exists there, which would prevent the student from carrying large projects. It is suggested further that some State Official from the Department of Vocational Education should visit each candidate's home farm. We should continue to place major emphasis on the supervised farming programs.

CHRISTENSEN, DON NEWELL

Relationship Between High School Vocational
Agriculture Training and Status of Graduates
in Non-farm Occupations Related to Farming.
Thesis, M.S., 1958, Iowa State College, 92 p.
Library, Iowa State College, Ames.

Purpose. -- To determine the relation between high school vocational agriculture training and status of graduates in nonfarm occupations related to farming. Comparisons were also made to determine the relation between occupational status of the graduate and each of the four following variables: college training, military service, occupational migration and type of employment.

Method. -- Questionnaires were mailed to all farm-reared male high school graduates who were graduated from 40 high schools in Iowa during the years 1943-54 inclusive, but were not at the time of the investigation farming or in the military service. Usable data were returned from 201 graduates who were in nonfarm occupations related to farming. The criteria used for measurement of occupational status were expressed occupational satisfaction, occupational prestige, and occupational income.

Findings. -- The relations between occupational status of the high school graduates and each of the variables--college training, military service, migration, and type of employment--were as follows: (1) College graduates--satisfaction, prestige, and income all significant at the 1 percent level; (2) military veterans--prestige and income significant at the 5 percent level; (3) migrants--satisfaction signifiicant at the 5 percent level, and prestige and income significant at 1 percent level; (4) self-employed graduates--income significant at 1 percent level.

Coefficient of correlations was computed for the three criteria for determining occupational status. The findings were income and prestige, +.347; income and satisfaction, +.238; and prestige and satisfaction, +.261. These values were all significant at the 1 percent level.

Little differences existed between the vocational agriculture graduates and the nonvocational agriculture graduates with respect to occupational status. The coded means of expressed occupational satisfaction were 2.52 for the vocational agriculture group and 2.42 for the nonvocational agriculture group. A mean occupational prestige score of 65.60 for the vocational agriculture graduates was comparable to the mean score of 65.22 for the graduates without vocational agriculture training. The mean annual occupational income for the vocational agriculture graduates was $4,645, as compared to $4,420 for the nonvocational agriculture graduates.

CHRISTENSEN, SIGMUND
Visual Aids For Teaching Vocational Agriculture. Field Study, M.V.Ed., 1959, The Iowa State University of Science and Technology. 117 p. Education Department, The Iowa State University of Science and Technology, Ames.

Purpose -- The major objectives for this field study were:

1. To acquaint the author with available visual aids and suggested techniques for their use.
2. To acquaint the author with the results of research in the field of preparation and use of visual aids.
3. To make the obtained information available for others.

Method -- The field study is based mainly on a review of literature: a selection of textbooks, research reports, magazine articles, abstracts, reviews, and manuals. Some information has also been gathered from companies supplying farm machinery, building materials, and farm supplies, and from other sources.

Organization -- The field study is organized in two main parts. The first part consists of a description of the more important visual aids, with some suggestions for use. Introductory in Part I are also mentioned some devices which are not commonly dealt with in connection with "Audio-visual aids." The second part contains the review of literature on research concerning the aids, with a general discussion of the theory of teaching aids.

CLOVER, EVERETT L.

Opportunities for Establishment of Young
Farmers in Farming in the Webster City
Community School District. Thesis, M.S., 1961,
Iowa State University of Science and Technology.
123 pages. Library, Iowa State University of
Science and Technology, Ames.

Purposes. -- The purpose of this study was to discover factual information regarding the opportunities for establishment of young farmers in farming in the Webster City, Iowa Community School District.

Method. -- Schedules were used in obtaining information from each of the 459 farm operators by personal interview.

Findings. -- The mean age of farm operators in the district was approximately 46 years. There were 50 operators who were 61 years or older and 23 who were 66 years of age or older. One-half of the 50 operators over 60 years of age owned less than 161 acres, whereas, no operators under 26 years of age owned any land. Of the 459 farm operators in the district, 180 owned land, and 64 of those men owned less than 81 acres.

Fifty per cent of the operators of farms of 241 to 320 acres, and 58 per cent of the operators of farms of 321 acres or more, planned to retire during the next 10 year period. The 117 operators who planned to retire within 10 years had a total of 155 sons. If one-half of these sons do not farm, there would be only 77 sons for 117 farms, providing the number of farms remains constant. Under those conditions there would be farms for approximately 40 additional replacement operators in the next 10 years or nearly four per year.

Younger farmers had the most formal education. About 37 per cent of the operators had not progressed past the eighth grade in school; 63 per cent had attended high school. More than 47 per cent had been graduated from high school, but less than four per cent were college graduates.

The average operator had farmed 19.6 years. Assuming that 33 years is an average length of time that an operator continues in farming, then the average man in the district will farm 13.4 years more before retirement.

One hundred ten of the operators studied had been employed in other occupations for from one to 10 years.

There were 266 farmers operating farms of 240 acres or less who had 302 sons; whereas, 193 farmers operating farms of more than 240 acres had 267 sons. This is a total of 569 sons. Under existing conditions, if all sons desired to farm, there would be a surplus of 110 potential farmers. If 50 per cent of the sons desired to farm the existing 459 farms, there would be a shortage of 174 farmers.

Nearly 84 per cent of the farmers in the study had no employment farm.

CLOVER, EVERETT L.

Data indicated that 92 operators would reach retirement age of 65 by 1970, or an average of 9.2 operators per year.

Opportunities for employment as a hired man appear very limited as only 26 operators used hired help for 12 or more man months during the year.

It was estimated that a total of 14 operators would leave the farms each year for the next 10 years. It was expected that each year 2.3 operators would die, 9.2 would retire, and 2.5 would take up other employment and thus leave the farm.

Because of the pattern of farm consolidation, approximately six farms would be eliminated and thus eight replacement farmers would be needed each year. During the last 10 year period, there have been an average of 11.4 new operators enter farming in the district studied.

It was expected that there would be approximately 10 young men graduating from vocational agriculture each year in the district. If 50 per cent of the vocational agriculture graduates want to farm, there would be a shortage of three replacements each year.

COLLINS, ROBERT M.

Research in Agricultural Education for Advanced
Degrees at the Iowa State College, Thesis, M.S.
1951, Iowa State College, 224 p. Library, Iowa
State College, Ames.

Purposes. -- To provide an easily accessible reference to studies in agricultural education; to make abstracts of these studies available; and to report certain historical findings regarding research in agricultural education at the Iowa State College.

Method. -- An abstract was written for each of 122 theses concerning agricultural education which were completed in partial fulfillment of the requirements for advanced degrees at the Iowa State College prior to 1951. The theses were classified into four main groups and within each according to areas of study. The 122 theses were cited 222 times in the classification

Findings and Interpretations. -- The theses were cited 20 times under the agricultural college classification, 35 times under the Agricultural Extension Service classification, 18 times under general agriculture in the secondary school, and 149 times under vocational agriculture.

Historical findings are shown regarding the years in which the research was completed, the areas of research, and selected statistical measures used in the research.

COLLINS, ROBERT M.

History of Agronomy at the Iowa State College.
Thesis, Ph.D., 1953, Iowa State College. 290 p.
Library, Iowa State College, Ames.

Purpose. -- The development of agronomy from the opening of the College in 1869 to 1953 has been traced in order to obtain a better understanding of present problems and conditions in the Department of Agronomy and to serve as a background for future planning.

Method. -- Official records of the College as well as many other published and unpublished documents were examined. Additional information was obtained by interviewing staff members.

Findings and Interpretations. -- The Department of Agronomy, established in 1902, was the outgrowth of the Department of Practical Agriculture although work of an agronomic nature had also been included in other areas, particularly in the Department of Agricultural Chemistry.

Work in agronomy had not been especially emphasized at the College prior to 1891. From 1891 to 1902 the emphasis on work in this area increased. The new Agronomy Department started with prestige due to the appointment of P. G. Holden as head. Holden came to the College with a national reputation which he had made from his work in Illinois. He remained as the Head of the Department, which included work in farm crops, soils, farm mechanics, and farm management during that time, until 1906 when he became head of the extension work at the College.

The total number of farm crops and soils courses changed frequently during the years between 1902 and 1931. Since 1931 the agronomy courses have been more stable and the tendency has been for a small amount of expansion in the number of courses rather than the substitution of one course for another. Throughout the years from 1902 to 1953 the content of courses has been revised in order to integrate the new knowledge gained from research.

The first Master's Degrees in farm crops and soils were granted in 1905. Agronomy was one of the departments authorized to give work leading to the degree of Doctor of Philosophy when the Iowa State College was authorized to grant this degree in 1915. By July, 1952, the total number of Doctor of Philosophy Degrees that had been granted in all areas by the Iowa State College was 1,330. Of this number, 156, or 11.7 per cent, had been granted in agronomy. Graduate work by members of the staff was initiate in 1914. The first research fellow in agronomy was appointed in 1916.

The resident teaching staff in agronomy has been characterized by the relatively long tenure of its members during the years from 1902 to 1953. During the early years of the twentieth century it was a policy in the Division of Agriculture that staff members should devote full time in one of the areas of teaching, research, or extension. This policy graduall changed and for the last 20 years the majority of resident teaching staff

COLLINS, ROBERT M.

members in agronomy have also been on the staff of the Iowa Agricultural Experiment Station.

Administration, facilities, student activities, non-collegiate work, and short courses are other areas covered in the study.

COX, CHARLES A.

Methods of Instruction Used in Adult
Farmer Classes in Virginia. Thesis, M.S.
1955, Iowa State College. 94 p. Library,
Iowa State College, Ames.

Purpose. -- To discover the methods of instruction being used by instructors of vocational agriculture in teaching adult farmer classes in Virginia.

Method. -- Area supervisors of vocational agriculture submitted a list of 203 instructors of vocational agriculture who were teaching at the time of this study and who had conducted one or more adult farmer classes in the school year of 1953-54. A questionnaire was sent to each instructor concerning the extent to which he had used each of 28 teaching methods asking for this evaluation of the methods which he had used.

Findings and Interpretations. -- The responses of 169 instructors who cooperated in this study showed a wide variation in the extent of use and in the value ascribed to the 28 different methods investigated. The responses concerning the evaluation of the various methods of instruction resulted in mean scores ranging from 3.29 to 1.57 on a scale of values in which a score of 4 equaled very much value and 1 equaled little or no value. No significant differences were found between the various teaching methods and the number of years of teaching experience of the cooperating instructors.

Of the 28 methods investigated, the method involving demonstrations was used most. The method involving actual practice in shop and laboratory skills was rated the highest in value. The use of films and projected materials ranked second in the list of methods from the standpoint of extent of use.

The responses of instructors concerning the extent to which the advisory council assisted with adult farmer classes showed that there was little difference in average attendance of class members in adult classes in which an advisory council was used and in classes in which an advisory council was not used.

A majority of the respondents had used outside speakers with part or full responsibility for one or more meetings. These methods were ranked 18th and 20th respectively in value in the list of 28 methods. Methods involving the use of symposiums and the use of radio and television were ranked among the lowest in use and value.

CRAWFORD, HAROLD R.

Influence of High School Vocational Agriculture
on Soil Management Practices Followed by Graduates.
Thesis, M.S., 1955, Iowa State College. 106 p.
Library, Iowa State College, Ames.

Purpose. -- To determine the influence of vocational agriculture on soil management practices.

Method. -- Four graduate students cooperated in preparing a schedule and in interviewing 240 farm-reared high school graduates who were farming at the time of the study. Of the graduates, 120 were from 10 high schools which had offered vocational agriculture since 1941 and 120 were from 10 schools which had not offered vocational agriculture. The sampling was made in such a way as to avoid disproportionality with respect to certain factors which may have influenced the management practices followed. Mean scores were computed from the responses of the graduates for each of 21 soil management practices, and analysis of variance tests were made.

Findings and Interpretations. -- Of the 21 practices investigated, the vocational agriculture graduates had higher scores in 13 practices and scores for the non-vocational graduates were higher in 5 practices. Analysis of variance tests showed that the difference in the extent to which the two groups were using grass water ways was significant at the one per cent level. Former vocational agriculture students had the higher score for this practice. Differences in the use of three other practices were significant at the 5 per cent level in favor of the former vocational agriculture students.

The average of the mean scores for all 21 practices was higher in the case of the former students of vocational agriculture than for the non-vocational students. Similarly the averages of the mean scores of each of the sub groups of the vocational agriculture graduates was higher than the averages of the non-vocational agriculture sub groups.

A larger number of the vocational agriculture graduates had attended college than had the non-vocational agriculture graduates. Of the graduates who had attended college, nearly three times as many of the vocational agriculture graduates went to an agricultural college as had the non-vocational agriculture graduates.

DAKAN, EDWARD E.

Influence of High School Vocational
Agriculture on Production and Management
Practices Used by Graduates. Thesis, M.S.,
1956, Iowa State College. 109 p. Library,
Iowa State College, Ames.

Purpose - To determine the use made of production and management practices by farmers who had vocational agriculture training in high school and those farmers who had no vocational agriculture training.

Method - Those production and management practices which had been shown to be statistically significant indicators of the contributions of vocational agriculture training were selected. In addition to 24 production and management practices there was a seperate section in form of a check list by which different kinds of information kept by graduates in their farm records were accounted.

The total sample consisted of 320 graduates who had graduated during 1943-1954. Control was exercised on basis of vocational agriculture training, owner or nonowner status of parents and period of graduation. Personal interviews were conducted.

Findings and Interpretations - Vocational agriculture and nonvocational agriculture graduates in this study tended to originate from similar size home farms and farms with similar numbers of crop acres. About equal numbers of fathers of members of both groups were living at the time of graduation. Likewise, graduates in the two groups had similar numbers of brothers.

It was found that more of the vocational agriculture graduates were married, more were farming and more were farming larger acreages. Greater degree of management responsibilities of the vocational agriculture graduates was indicated by leasing arrangements.

Vocational agriculture graduates had higher mean scores on 23 of the 24 practices, but statistically significant differences at the one per cent level were indicated for only five practices. Three of these practices were concerned with uses made of farm records. Significant differences at the five per cent level were found for four practices.

Interactions between the types of farm records kept in 1955 and uses made of those records failed to show statistical significance for use in planning the cropping systems, but statistical significance at the one per cent level were found for use of records in planning and managing the livestock program and also in making use of labor, machinery and power.

DAVIDSON, STANLEY

Project Completion as Related to the Financing of 4-H Club Agricultural Projects. Thesis, M.S., 1952, Iowa State College. 69 p. Library, Iowa State College, Ames.

Purpose. -- The purpose of this study was to determine the frequency with which first year 4-H members made definite financial arrangements in regard to their projects, and the relationship of their arrangements to completion of project work. In addition, it was desired to find whether significant relationships existed between project work completion status and other variables, namely; age, experience of brothers or sisters in 4-H club work, type of project, and size of family.

Method. -- The data for this study was collected by means of a survey made in twenty-five northeast Iowa counties during July and August, 1951, and from 1951 annual county extension directors' reports. Only boys meeting the following qualifications were included in the study:

1. Enrolled for the first time in an agricultural 4-H Club since September 1, 1950.
2. Carrying one of the major livestock projects as reported on an enrollment report form (C-246) on file in the county extension office by May 15, 1951.

Findings. -- No significant relationships were found to exist between project completion status, and (1) financial arrangements made by 4-H members and their parents, (2) type of project carried, (3) age of member, (4) existance of brothers or sisters who had experience in 4-H club work, and (5) size of family.

Significant relationships were found to exist between type of livestock projects carried and the arrangements made by the boy and his parents regarding incurred operating expenses, as well as the allocation of net profit or losses.

The relationships between (1) age of member, (2) existance of brothers or sisters with experience in 4-H club work, (3) size of family and (4) arrangements made to finance the project were all found to be non-significant.

DETTMANN, EMERON PAUL
Competencies in Agricultural Mechanics Needed
by Vocational Agriculture Instructors. Thesis,
M.S., 1965, Iowa State University of Science
and Technology. 106 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose -- To determine competencies in agricultural mechanics needed by vocational agriculture instructors, the degree of competence possessed by the instructors and the place of acquiring competencies.

Method -- A list of competencies was developed by a panel of outstanding vocational agriculture instructors and revised by a panel of College of Agriculture Specialists. The revised list was mailed in questionnaire form to 225 experienced Iowa vocational agriculture instructors. Instructors indicated the degree each of the 56 competencies were needed and possessed on a 10 point scale and whether the competence was acquired on farm, in vocational agriculture, in college or on the job. Instructors were stratified into groups A, B, C or D according to teaching competency.

Findings -- Competencies involving safety factors and the correct use of all tools were given high degree of competency needed scores by both groups A and D. Other high ranking needed competencies were; figuring a bill of materials, constructing and repairing buildings and equipment, electrode selection, and operating principles of farm tractors and machinery, including maintenance and adjustment. Ranked lowest by group A instructors on the basis of need were; in descending order, installing copper tubing, flaring and soldering joints; selection and caring for rope; and doing forge work.

The Spearman rank order coefficient of correlation was used to analyze both the mean competency needed and mean competency possessed scores for groups A and D. A correlation of 9.87290 was obtained for competency needed scores, while competency possessed scores yielded a correlation of 9.89776, thus, there was a strong tendency for the two instructor groups to rate competencies needed and possessed similarly.

The Pearson product-moment coefficient of correlation was used to analyze the association between degree needed scores of all competencies. Of the 1596 possible combinations, 1189 were significantly correlated at the five percent level and 918 at the one percent level.

The most important source of acquiring competencies was college, while on the job ranked second.

DOUCE, LOWELL RICHARD

Probing Live Hogs of Different Ages
to Evaluate Carcass Quality. Thesis, M.S.,
1954. Iowa State College. 93 p. Library,
Iowa State College, Ames.

Purposes. -- This study was 1) to determine the effect of "probing" upon subsequent health and growth, 2) to develop a technique for measuring the shape and size of muscle in the backs of live swine, 3) to determine the accuracy of probing at different ages as a means of predicting carcass quality at 210-225 pounds, 4) to establish a reliable and practical standard for evaluating carcass quality of live swine probed at different weights and ages, 5) to compare the accuracy of "probing" at eight different locations, and 6) to evaluate "probing" as an aid for selecting breeding stock on a practical basis.

Method. -- The data came from 129 pigs raised under R.O.P. (record of performance) conditions on the Iowa State College swine breeding farm near Napier, Iowa. Coming from 33 different litters, the pigs were mostly crossbreeds involving different inbred lines of the following seven breeds: Duroc, Poland China, Chester White, Landrace, Hampshire, Hamprace, and Yorkshire. Birth dates of the litters ranged from August 12 to September 9, 1953. Four pigs per litter were selected for the R. O. P. Tests originally. Selection was random, with performance being given to barrows. The heaviest and lightest pig were selected as the control pair with the two middle pigs being designated for probing. Thus the probed pigs were more uniform in weight than if they had been randomly selected from the four. Complete feed records were kept for each group of four pigs. There were three probings of each pig.

Findings. -- Although 66 hogs were probed at average weights of 136 and 170 pounds, no harmful effects of the probing were found either in subsequent growth rate or in carcass quality.

Probe measures taken on pigs of different ages and weights were adjusted for weight by two different methods.

1. $$\text{D Score} = \frac{\text{weight in pounds x 100}}{\text{age in days x average probe depth}}$$

2. $$\text{Adjusted probe} = \frac{\text{standard weight x actual probe}}{\text{actual weight}}$$

Three different standard weights were used - 135, 170 and 210 pounds.

The correlations listed in the findings by the author indicate that probing is of high practical value in the selection of breeding stock which are of meat type. The chief advantages are:

1. Rapid, economical, and relatively easy.
2. Does not impair the later breeding value of the animals.

DOUCE, LOWELL RICHARD

3. By using the probing information in a D score, fast-growing, economically gaining hogs with high percentages of lean cuts can be selected.
4. Probing information can be combined with other selection indices to aid selection for over-all merit.
5. Can be used in selecting boars before the major effect of sex has developed.
6. By making proper adjustments, it can be used on groups of animals differing widely in ages and weights.

DRAKE, ELDON M.
Farming Status and Reading Preference in a
Magazine - Type Publication Presenting Farm
Information, Dissertation, PhD., 1951, Iowa
State College, 189 p., Library, Iowa State
College, Ames.

Purpose — This study was designed to furnish some evidence to those charged with the publication of one such magazine - the *Iowa Farm Science* - concerning the reader preferences with respect to content as well as method of presentation and their relationship to such factors as age, education, farming status, and source of farm income.

Method — Questionnaires were mailed to 3,582 readers of the *Iowa Farm Science* who had designated their occupation as farming and 3,101 questionnaires were returned in usable form. The geographical distribution of these Iowa farm readers, when classified by counties, indicated that the number of readers per thousand farms varied from a low of 5.1 to a high of 36.6.

Findings — The responses of MORE, LESS and SAME AMOUNT of *Iowa Farm Science* were recorded on 91 topics based on 28 subjects dealing with material that had previously been published in the magazine. The following results were obtained concerning the opinions of the general Iowa farm population:

(1) Hog information - same amount or more
(2) Beef cattle - more
(3) Dairy information - more
(4) farm crops - more
(5) Crop rotations and soil erosion - same amount or more
(6) Small grains, fertilizers, grasses and legumes, corn & weather - same amount or more
(7) Poultry - more
(8) Farm management - more
(9) School district reorganization - same amount

Various opinions were exhibited toward other areas by specific types of readers such as older readers, younger readers, readers with higher education, etc.

Concerning the method of presentation of farm information, the more highly educated readers preferred tables while the lower educated readers preferred the material be presented in the text. Readers who would rather get their farm information in a graph rather than a table had a higher educational level.

In many of the analyses, significant differences which were apparently related to either age or education, disappeared whenever the age or educational level of the reader was controlled. Based on such evidence, any further attempts by the magazine to determine relationships between reader characteristics, should not disregard the age-education relationship here demonstrated.

DRAKE, ELDON M.

It would appear from the evidence found in this study, that the editors of Iowa Farm Science are doing a commendable job of satisfying the preferences of the farm reader. Although differences among the present group of readers have been demonstrated, such differences do not assume sufficient magnitude, to warrant any other than minor changes in the present editorial policy of the magazine.

EGGENBERGER, ULRICH LEWIS

An Analysis of High School Vocational
Agriculture from Evaluations of Graduates
in West Texas. Dissertation, Ph.D., 1964,
Iowa State University of Science and
Technology. 166 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose. -- (1) To determine the present occupational status of West Texas high school graduates of 1953, 1954 and 1955 who had completed one or more years of vocational agriculture, (2) to determine factors related to occupational choices of graduates, (3) to evaluate the high school course areas and the vocational agriculture programs as related to the occupations of the graduates, and (4) to determine possible changes that could be made in vocational agriculture in order to meet the needs of male high school graduates.

Method. -- Data used in the study were secured from the permanent records of 45 west Texas high schools and from completed questionnaires obtained from 846 graduates (70.4 percent)

Findings. -- Twenty-eight and four-tenths percent (240) of the graduates were farm operators, 15.7 percent (133) were employed in farm-related occupations, 49.5 percent (419) had entered nonagricultural occupations, and 6.4 percent (54) were in the military service.

The following factors were related to the occupational choices of the graduates at the one-percent level of significance when tested by use of the chi-square statistical method: occupation of the father, acres of land operated by the father while the son was in high school, years of vocational agriculture completed by the high school graduate, and the graduate's subsequent attendance at college. The scholastic rank of the high school graduate was significant at the five-percent level.

Approximately three-fifths of the 846 graduates had attended college. One-half of those who had attended college had received a degree.

The graduates, not classified by occupation, rated the value of the high school course areas in the following decending order: mathematics, english, business and bookkeeping, speech, vocational agriculture, science, industrial arts, typing, and foreign language. The farm operators rated vocational agriculture second and those graduates in farm-related occupations rated it fourth.

The farm operators rated the value of the eight subject-matter units in vocational agriculture in the following decending order: crop production, farm management, farm mechanics, livestock production, soils, agricultural occupations, FFA leadership activities, and horticulture. The graduates in farm related occupations rated soils and FFA leadership activities higher than did the farm operators.

The supervised farming program was rated "important" to the farm operators and those in farm-related occupations but of "little importance" to those in nonagricultural occupations.

Graduates who were in farm-related occupations or were farm operators received the most value from their FFA training, indicating its value as "important". The graduates in the three occupation groups who participated in FFA leadership contests rated the training as "important" in their present occupations.

The graduates who were farm operators and who were in farm-related occupations rated the value of agricultural judging contests considerably higher than did those graduates in nonagricultural occupations. Graduates who were farm operators had greater participation and received more value from training received in fitting and showing livestock than did the other groups.

ELLIOTT, DEAN ALEXANDER

Implications for Adult Education in
Agriculture from Responses of Participants
in the Veterans' Farm Training Program in
the Central Region: II. Course Content.
Thesis, M.S. 1951, Iowa State College, 164
p. Library, Iowa State College, Ames.

Purpose. -- To determine the extent to which certain units of study should be stressed in future programs in agricultural education for young and adult farmers.

Method. -- Schedules were obtained from members of 50 veterans classes in each of the 11 states cooperating in the study. Classes within each state were selected at random. From the 11,299 completed schedules by means of a table of random numbers 300 schedules were drawn for each state. Information from a total of 3,300 schedules was transferred to IBM cards and was analyzed with respect to 17 units of study. Chi-square analysis was used as a test for significance. Mean scores for each state were determined by weighting responses.

Findings and Interpretations. -- High mean scores for 13 of the 17 units were obtained from Kentucky. Data from Wisconsin yielded the largest number (6) of low mean scores for any 1 state. Responses of the veterans indicate that in future programs in agricultural education at least "some" emphasis should be given all 17 units of study.

On the basis of mean scores obtained in typical states the ranking of the 17 units of study ranging from those which should be given the least emphasis was as follows: soil conservation, livestock production practices, crop production practices, farm planning and management, farm mechanics, farm skills, marketing farm products, farm and home accounts, farm and home improvement, farm health and safety, farming programs, food preservation and storage, community and cooperative activities, leadership, fruit and vegetable production practices, family relationships, and recreational activities.

Responses of veterans classified on the basis of years of experience in vocational agriculture yielded significant differences in the cases of four units of study, namely: fruit and vegetable production practices, marketing farm products, soil conservation, and recreational activities.

ELLIOTT, DEAN ALEXANDER

The Role of Agricultural Education in the
Development of Agriculture in Ethiopia. Thesis,
Ph.D., 1957, Iowa State College. 391 p.
Library, Iowa State College, Ames.

Purpose. -- To survey the development of agricultural education in Ethiopia and to make recommendations for expansion and improvement of the existing program.

Method. -- Data were secured from numerous sources within Ethiopia and from sources in Great Britain and the United States. The writer was employed in Ethiopia for a period of two and one half years. During that time all phases of the present program of agricultural education were studied. One hundred forty-two references were utilized.

Findings and Interpretations. -- The initial phase of the agricultural education program began in 1946 when the United Nations Relief and Rehabilitation Administration began a supply assistance program in connection with which certain instructional activities were carried out.

The United Nations Food and Agriculture Organization began operations in Ethiopia in 1947 and is still functional there. Educational activities have been organized in various areas of agriculture.

The United States technical assistance program in Ethiopia was begun in 1952. Part of the effort expended under this program has been placed upon in-service training in connection with the development of various agricultural services.

Educational activities in schools and colleges have been expanded rapidly during the past seven years. This effort has been supported by the United States technical assistance program and the Ethiopian Government. Included is a system of secondary schools and the Imperial Ethiopian College of Agriculture which was opened for instruction on November 5, 1956.

The development of educational facilities in Ethiopia is rendering that country less dependent upon schools in other countries. Furthermore, Ethiopians are now gaining access to educational facilities suited to their needs.

Recommendations stressed the inclusion of more agriculture in the curriculum of schools of general education, the expansion of the community school program, the improvement of in-service type of training offered through technical assistance, the establishment of additional agricultural secondary schools, the expansion of the program at the College of Agriculture, and the expansion of research and extension programs.

FIFE, HARVEY DREXEL

An Appraisal of the Farm and Home Development
Program in Delaware County, Iowa. Unpublished
Thesis, M.S. 1958, Iowa State College. 90 p.
Library, Iowa State College, Ames.

Purpose. -- The purpose was to obtain an appraisal of the agricultural extension farm and home development program from the participants in Delaware County, Iowa, to use in improving the program in the county and in improving similar programs in other locations.

Method. -- Forty-seven men and 46 women who had actively participated for two or more years were interviewed by the writer and the data divided for tabulation according to sex and length of participation.

Findings and Interpretations. -- Of a total of 93 respondents, 80 reported an average of more than three areas each in which they had made changes as a result of their contact with the program. The men ranked the value received from the total program slightly higher than did the women. On the check sheet on which the respondent was asked to rank the value received from each of 21 areas of work included in the program, the mean rankings were by the men of all the areas was higher than the rankings made by the women, a difference that was highly significant.

The respondents reported they received more value from group meetings than from individual conferences. Approximately three times more hours were spent in group meetings than were spent individually. They desired more individual visits, more meetings per year and to continue in the program more than two years. Sixty-nine of a total of 93 respondents recommended two years or less of farm management experience as the optimum length for them to derive maximum benefit from the program.

FULTON, DAVID A.

Effect of High School Vocational Agriculture
on Achievement in the Introductory Farm
Mechanics Course at the Iowa State College.
Thesis, M.S., 1956, Iowa State College. 68 p.
Library, Iowa State College, Ames.

Purpose. -- To determine the effect of high school vocational agriculture training on achievement in the introductory farm mechanics course at the Iowa State College.

Method. -- The data for this investigation were collected from 237 students who had received a final mark in the introductory farm mechanics course (A.E. 254) for the fall quarter, 1955, and the winter quarter, 1956. In order to make comparisons, the students were grouped according to whether they had had high school vocational agriculture training. A questionnaire was developed and personally administered to the students. The questionnaire was designed to acquire information concerning (1) mechanical construction, (2) mechanical repair, (3) tools and equipment used, and (4) (A. E. 254) jobs previously done by each student in the sample. Other data obtained from the questionnaire included (1) college curriculum, (2) college classification, (3) high school vocational agriculture training, and (4) military training.

Findings and Interpretations. -- Indications from the available information were that high school vocational agriculture class size had no influence on farm mechanics skills used by former vocational agriculture students prior to their enrolling in (A.E. 254). Analysis of the information at hand indicated that participation in high school vocational agriculture had a high positive correlation with skills used in the farm mechanics area prior to the students' enrolling in the introductory farm mechanics course. With the final mark in (A. E. 254) as the criterion, an evaluation by analysis of variance was made in which the mean marks of the former vocational agriculture students were compared directly to the mean marks of students not having had high school vocational agriculture. A t-value of 2.36, which is significant at the 5 per cent level, was obtained; therefore, the null hypothesis which assumes no difference between groups in achievement is not tenable.

It was concluded that experiences with (1) mechanical repair, (2) tools and equipment, and (3) (A. E. 254) jobs had an effect on achievement in (A. E. 254) regardless of where the experiences had been encountered. Because students who have been enrolled in high school vocational agriculture have had more opportunity to (1) do mechanical repair, (2) use tools and equipment, and (3) do (A. E. 254) jobs than other students have had, they tend to excell students who had had no high school vocational training, in achievement in (A. E. 254).

GAUGER, CARLYLE J.

Effectiveness of the 4-H Club Program
in Story County, Iowa. Thesis, M.S.
1955, Iowa State College. 88 p. Library
Iowa State College, Ames.

Purpose. -- To determine differences in the educational value and enjoyment experienced by members from various activities in 4-H Club Work. To determine the influence of age, sex, occupational preference, and participation in other organizations on the educational value and enjoyment expressed by 4-H Club members.

Method. -- Questionnaires were filled out by 407 club members while in attendance at regular club meetings.

Findings and Interpretations. -- It was found that the vocational preference of 165 of the 247 boys was farming. The 160 girls expressed preferences for the following occupations, ranked in order of responses: teaching, nursing, homemaking, and secretarial work. The preferred place of residence at maturity for boys was farms, with small cities ranking second. Preferred place of residence at maturity for girls ranked in order were: small cities, farms, and small towns.

All members considered, the rating of group activities in 4-H was higher than the rating of individual activities. Boys rated projects higher than did girls, but on most other activities the mean scores of all girls were usually higher than those of all boys. All sex and age groupings favored more joint (boy and girl) activities. Mean score ratings of local club 4-H activities rated high by all club members were the following: Club tours, 2.54; skating parties, 2.53; regular meetings, 2.50; other parties, 2.42; banquets, 2.42; and camps, 2.38.

Members who participated in other organizations rated 4-H activities higher on educational value and enjoyment than did those who were in no other organizations.

Ratings of club members participating in FFA were little different from those of other boys in 4-H work. Boys not in FFA showed a stronger preference for group activities, but FFA members showed greater preference for joint (boy and girl) 4-H activities. Boys who wanted to be farmers rated activities closely associated with projects and local club meetings higher than did boys planning to enter other occupations. Boys planning other vocations rated countrywide activities higher than did the boys who wished to farm.

GREEN, DONALD G.

Recommendations for Training Present and
Prospective Employees in Grain Marketing
and Farm Supply Businesses. Thesis, M.S.
1954, Iowa State College. 89 pp. Library,
Iowa State College, Ames.

Purpose. -- To secure the opinions and recommendations of managers in the field regarding the establishment of a training program for persons interested in careers in the grain marketing and farm supply industry.

Method. -- Printed schedules were sent to 694 managers of farmer's co-operative elevators, branches of line company elevators, and independently owned elevators in Iowa. A random sample of approximately 25 per cent of the managers who did not respond by mail were interviewed. Total responses included 366 by mail and 58 by interview, or 61.1 per cent.

Findings and Interpretations. -- Descriptive information about the managers and their businesses were obtained. In reporting their educational attainment, 75 per cent of the managers indicated that they had completed high school. No high school training was reported by 10.6 per cent and no college training by 69.2 per cent of the managers. Only 8.7 per cent indicated that they had completed four or more years of college. Information regarding the managers' recommendations for training present and prospective employees revealed that college training rather than getting a job in the field was recommended as the better method of preparatory training by more than 50 per cent of the respondents for all but five of 41 subject matter areas. All but four of the areas ranked above the mean on a much, some, none scale in regard to the amount of emphasis each area should receive in a college training program. The managers recommended a one to two-year college training program carrying full credit and including a six-month period of on-the-job training during the summer and fall months for prospective employees. A training program for present employees was recommended by 88 per cent of the managers. A short course three to nine weeks in length held during the winter months and designed primarily for assistant managers was suggested. A companion study by James E. Wall dealt with the need for training present and prospective employees in grain marketing and farm supply businesses.

HAMILTON, JAMES D.

Implications for Adult Education From
Responses of Participants in the Veterans
Farm Training Program in the Central
Region: III. Methods of Instruction.
Thesis, M.S., 1951, Iowa State College.
124 p. Library, Iowa State College, Ames.

Purpose.-- To determine the opinions of the veterans concerning the types and methods of instruction and the preferred sources of reference material used in the institutional on-farm training program in the Central region.

Method. -- Completed schedules were obtained from a total of 11,299 veterans in the 11 States participating in the study. The responses of 300 veterans selected at random from each State were used in the tabulation of data.

Findings and Interpretations. -- The veterans in each State rated classroom instruction of most value, and with the exception of one State, individual on-farm instruction was rated higher than small group on-farm instruction. Veterans who had instructors who were rated high by their supervisors tended to rate classroom instruction high. More emphasis might be given to the improvement of methods used in individual on-farm instruction. Since several hours are devoted by the instructor to individual on-farm instruction as compared to each hour devoted to classroom instruction, the need for improvement is magnified. This suggestion is also applicable to small-group on-farm instruction since more efficient use of instructor time may result from this type of instruction.

The veterans in each of the 11 States preferred the demonstration and discussion methods of classroom teaching which suggests that more emphasis might be given them on pre-service and in-service training. Laboratory work involving actual performance by students and question and answer methods received almost equal ratings. The lecture method was rated below these first four methods. Group or individual reports and debates were rated lowest.

Bulletins and circulars from the home State college were the preferred source of reference materials. Bulletins and circulars from the United States Department of Agriculture were rated second, followed by farm texts or reference books. Veterans in two States rated farm magazines and papers fairly high. Apparently more emphasis might be placed upon the selection and use of these as reference materials in some States.

HAMILTON, JAMES EDWARD.

Implications for Adult Education From
Responses of Participants in the Veterans
Training Program in the Central Region:
V. Methods of Improving Instruction. Thesis,
M.S., 1953, Iowa State College. 125 p. Library,
Iowa State College, Ames.

Purpose. -- To determine by the opinions of veterans the importance of certain practices for improving classroom and on-farm instruction that may be used in planning and conducting future educational programs for farmers.

Method. -- The sample for the study was obtained by interviewing the members of 50 classes of veterans in each of the 11 participating states of the Central Region. Three-hundred completed schedules were drawn from each state for final tabulations.

Findings and implications. -- The veterans in all 11 states rated securing qualified instructors as of first importance for improving classroom instruction. This implies that all School Boards or other persons responsible for future training programs of farmers should be sure to employ fully qualified instructors.

Other practices for improving classroom instruction as ranked on the basis of mean scores obtained in the median state are listed in the order of importance: securing recent books, bulletins and farm magazines; using movies, slides and other visual aids; connecting problems to actual farming situations of students; giving time to individual farm problems of student; bringing in specialists; having active participation by all students; using local information; making farm visits by the instructor; supervising study in the classroom; using notebooks; setting up goals for each practice; changing teaching methods from time to time; and having home study.

The implications are that vocational agriculture instructors and veterans instructors should use the higher rating practices to improve future educational programs for farmers.

HAMILTON, WILLIAM HENRY.

Competencies in Agriculture Needed by Males
Employed in Retail Feed Distribution. Thesis,
M.S., 1964, Iowa State University of Science
and Technology. 126 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose. -- To determine the agricultural competencies needed by males employed in retail feed distribution, the degree of competency needed and possessed by employees in each competency, and to identify employment opportunities in the industry in Iowa.

Method. -- A panel of 15 selected managers of outstanding feed dealerships in Iowa identified the important agricultural and nonagricultural competencies needed by males in retail feed distribution. A questionnaire was developed around this list and submitted to managers and employees of outstanding feed dealerships in Iowa with instructions to indicate the degree of competence needed and possessed in the competencies listed. Responses (140) were analyzed using mean scores. An additional questionnaire was developed and submitted to a stratified random sample (445) of Iowa feed dealerships, asking each manager to indicate the number of persons employed in 1958, 1963, and to be employed in 1968 and the ages of each employee presently employed.

Findings. -- Of the 41 agricultural competencies identified, 22 were understandings and 19 were abilities. Twenty-five competencies pertained to farm abilities and understandings and 16 to dealership operations. Highest overall scores for competencies needed for all groups were found for the abilities to analyze a farmer's credit potential and when to extend credit, to communicate with farmers, to accurately compute formulations for custom mixes with various size lots of grain delivered for processing, to recognize potentially good customers, and the understanding of animal nutrition, health and sanitation. In 83.9 percent of all competency ratings, competence needed was higher than competence possessed.

Managers averaged higher competency needed than possessed scores on their ratings of themselves and of their employees in 90.7 percent of the comparisons made.

Chi-square analysis was used to test the comparison of the degree the 10 most important competencies were needed and possessed within three areas: vocational agriculture training, educational level and farm background.

The comparison of the employer's evaluations of employees who had and had not had vocational agriculture produced highly significant differences for both degree competency was needed and possessed, possessed scores being lower for the employees who had had vocational agriculture.

HAMILTON, WILLIAM HENRY

Comparisons of degree needed and possessed scores for managers grouped by educational achievement were highly significant for both degree needed and possessed, both scores increasing as the educational level of achievement increased.

Comparisons of degree possessed scores for managers grouped according to years of farm background were highly significant, with the scores increasing as years of farm background increased.

Comparisons of the employees' self-evaluation of degree possessed scores, when grouped by farm background, were highly significant; the scores increased as years of farm background increased.

An estimated 12,530 males were employed full-time in the feed, grain and fertilizer dealerships in Iowa in 1963. The anticipated employment in 1967 was projected to be approximately 15,700 men. New employees plus anticipated replacements for retiring workers resulted in an estimated 1,060 job openings in the industry each year in Iowa.

HENDERSON, EARL MAYNARD

Influence of High School Vocational Agriculture on the Establishment of Graduates in Farming. Thesis, M.S., 1956, Iowa State College. 111 p. Library, Iowa State College, Ames.

Purpose. -- To compare the extent of establishment in farming of graduates who had completed at least three years of vocational agriculture in high school with graduates of high schools not offering vocational agriculture.

Method. -- A total of 320 graduates, 160 vocational agriculture graduates and 160 nonvocational agriculture graduates, who had graduated during 1943-1954 were personally interviewed. Control was exercised on the basis of vocational agriculture training, owner or nonowner status of parents and period of graduation. A gross product was calculated for each graduate's farm. Analysis of variance was used to test the differences in the responses of the two groups concerning each aspect of their farming operation considered in making the study.

Findings and Interpretations. -- Vocational agriculture and nonvocational agriculture graduates in this study tended to originate from similar size home farms and farms with similar numbers of crop acres. About equal numbers of fathers of both groups were living at the time of graduation. Likewise, graduates in the two groups had similar numbers of brothers.

It was found that more of the vocational agriculture graduates were married, more were farming and more were farming larger acreages. Greater degree of management responsibilities of the vocational agriculture was indicated by leasing arrangements.

Significant differences were found in 10 of the 28 comparisons made between the two groups of graduates. They were: Size of farm operated, number of crop acres farmed, acres of corn raised, acres of oats raised, acres of legumes for hay raised, acres of rotation pasture raised, number of hogs sold for slaughter, crop gross product, livestock gross product, and total gross product.

In each of the comparisons where significant differences were found, the vocational agriculture graduates ranked higher than did the nonvocational agriculture graduates.

A general mean total gross product of $7,856, was found for the vocational agriculture group, as compared to a general mean of $6,352, for the nonvocational agriculture group.

The data obtained in this study indicate that high school vocational agriculture has had considerable influence upon the extent of establishment of the graduates in farming.

HENSEL, JAMES WILLIAM

Relation Between High School Characteristics of Farm Reared Senior Boys and Their Occupational Choices. Thesis, M.S., 1959, Iowa State College. 75 p. Library, Iowa State College, Ames.

Purpose. -- To determine what relationships existed between type of high school training (vocational agriculture and non vocational agriculture), farming status of parents, percentile rank in class and participation in high school activities of Iowa farm reared senior boys and their choices of occupations.

Method. -- Twenty high schools which had offered vocational agriculture training were paired with twenty schools which did not offer vocational agriculture. Questionnaires were personally administered to all farm reared senior boys in the 40 schools located in the central cash grain and eastern livestock farming areas of Iowa. The sample included 216 farm reared high school senior boys, 108 of whom had had vocational agriculture training and 108 of whom had not received this type of training. The completed questionnaires were further stratified according to the farming status of the parent.

The three criteria used in comparing the occupational choices of the senior boys were: type of occupation; the North-Hatt prestige score of the student's first occupational choice; and the composite or mean North-Hatt prestige score of their three occupational choices.

Findings and Interpretations. -- No significant differences were found between the occupational choices of the 108 senior boys with vocational agriculture training and 108 boys with no vocational agriculture training. No difference was found between the occupational choices of sons of land owners and sons of nonowners.

The farm reared senior boys who ranked high in their respective classes tended to choose professional occupations. The senior boys who chose professional occupations participated in sports, music activities and a total of all activities to a greater extent than did the boys who chose farming or other occupations. The farm boys who ranked high in their senior class scholastically tended to participate to a greater extent in music, miscellaneous and the total of all high school activities.

The parents were listed by nearly one-half of the 216 farm reared senior boys as having the greatest influence on their choice of an occupation. The vocational agriculture teacher was ranked second by those boys who chose farming and professional occupations. The person working on the job and a friend had nearly equal influence as the second choice for senior boys selecting other occupations.

HENSEL, JAMES WILLIAM

Experience on the job was the source of information having the greatest influence on the occupational choices of the farm reared senior boys who chose farming and other occupations. Books and pamphlets tended to be the most important source of information for the senior boys who selected professional occupations.

HENSEL, JAMES WILLIAM

Relation of High School Course Work to Achievement at the Iowa State University of Science and Technology, Dissertation, Ph.D., 1962, Iowa State University of Science and Technology, 110 p., Library, Iowa State University of Science and Technology, Ames.

Purpose. -- The purpose of this study was to determine what relationships existed between certain pre-college variables and achievement in the various colleges at the Iowa State University of Science and Technology. This study was one of a series and was financed in part by the Iowa Agricultural Experiment Station.

Method. -- Two sample groups were analyzed consisting of students who entered each of four colleges at Iowa State University of Science and Technology in the Fall quarter of 1955. A sixteen variable intercorrelation matrix was designed for each sample including such items as semesters of high school course work, high school grade point average, college entrance test scores, and three measures of university achievement, the student's first and third quarter college grade point averages as well as likelihood of graduation. An analysis of multiple regression was employed in an effort to predict achievement in the various colleges at Iowa State University of Science and Technology.

Findings. -- In both sample groups tested, the most recent cumulative grade point average, the English placement test score and the mathematics placement test score were the variables which were most highly correlated with the criteria of university achievement. Semesters of certain high school courses such as mathematics and science appeared to have a positive but variable correlation with achievement in the various colleges. Through an analysis of multiple regression it was determined that the high school grade point average, the English placement test score and the mathematics placement test score were relatively useful predictors of college achievement, especially in terms of first and third quarter college grade point averages. The values, though significant, were quite low as they applied to the third measure of college achievement, graduation tendency.

Findings in this study have indicated that significant relationships existed between certain pre-college variables and achievement in the different colleges at Iowa State University of Science and Technology. Once the student had completed one quarter at the University, the best single predictor of future grades in college or ultimate graduation tended to be the student's most recent grade point average. The longer the student remained in college, the more useful the cumulative college grade point average became as a predictor of academic achievement at Iowa State University.

HERMAN, RALPH HILBERT

Occupational Status of Farm-Reared Male
Graduates of the Winfield High School
(1935-1950). Thesis, M.S., 1957, Iowa
State College. 65 p. Library, Iowa State
College, Ames.

Purpose. -- The purpose of this study was to determine the factors associated with establishment in farming or other occupations of farm-reared males in two communities and to compare the establishment in farming of graduates from a high school with vocational agriculture and from one without. In addition it was desired to determine some of the difficulties encountered by farm boys who would like to become established in farming.

Method. -- Copies of questionnaires were mailed to the farm-reared males who graduated during the years 1935 to 1950 inclusive from the high schools at Winfield and Morning Sun, Iowa. Additional information was obtained from school records, former superintendents, editors of local newspapers, and other people in the community.

Findings and Interpretations. -- As far as can be determined from the data, graduates of the vocational agriculture school went to agricultural colleges in greater numbers than graduates from a high school not offering such training.

More vocational agriculture graduates farmed as their first occupation than the nonvocational agriculture graduates.

The vocational agriculture graduates tended to have more money at the time of graduation than the nonvocational agriculture graduates.

It was found in this study that more vocational agriculture graduates were farming and were in related or professional agriculture fields than the nonvocational agriculture graduates.

The number of graduates now farming on the farms operated by their fathers while they were in high school was found to be greater among the vocational agriculture graduates than among the nonvocational group.

The status of graduates in farming indicated that vocational agriculture graduates tended to become established in farming at a higher status than nonvocational agriculture graduates.

It appeared that vocational agriculture graduates tended to rent larger farms than nonvocational agriculture graduates.

Information from this study indicates that the vocational agriculture graduates in the Winfield Community as compared to the nonvocational graduates in the Morning Sun Community received somewhat more guidance, are more frequently engaged in farming, rent larger farms, go to an agricultural college in larger numbers, and in general are slightly more satisfied with their present occupations.

HOERNER, THOMAS ALLEN

Relation of High School Vocational Agriculture to Achievement in Agricultural Engineering Courses at the Iowa State University of Science and Technology. M.S. Thesis, 1963. Iowa State University of Science and Technology. 80 p. Library, Iowa State University of Science and Technology, Ames.

Purpose. -- The purposes of this study were: (1) to determine the relationship between semesters of high school vocational agriculture and achievement in agricultural engineering courses at the Iowa State University; (2) to determine what factors influence achievement in agricultural engineering courses, and to show what relationship existed among factors commonly used in predicting success in college and achievement in courses in agricultural engineering.

Method. -- The sample for this investigation was selected from the 2,228 students who had matriculated in the freshman class in the fall quarter of 1955. The final sample consisted of 251 male students who had completed one or more of four selected agricultural engineering courses. High school and university records were used to collect the necessary data. Seven intercorrelation matrixes were produced by adding one at a time each of seven grade and quality point average combinations from agricultural engineering courses to the following high school and college records.

High School: (1) semesters of vocational agriculture, mathematics, physics and chemistry; (2) rank in graduating class; and (3) high school quality point average.

College: (1) final and third-quarter college quality point averages and (2) mathematics placement score.

Findings. -- No significant relationship was found to exist between semesters of high school vocational agriculture and semesters of high school mathematics, semesters of high school chemistry, rank in high school vocational agriculture and semesters of high school physics, indicating the substitution of vocational agriculture for physics in the high school curriculum.

Positive correlations, significant at the five percent level, existed between high school vocational agriculture and high school quality point average, final college quality point average, third-quarter college quality point average and grade in Agricultural Engineering 254, (Metal Fabrication). However, non-significant relationships were found to exist between semesters of high school vocational agriculture and grade in Agricultural Engineering 255, (Wood & Concrete Construction), grade in Agricultural Engineering 334, (Farm Power & Mach.) and grade in Agricultural Engineering 306, (Soil & Water Conservation).

HOERNER, THOMAS ALLEN

Highly significant coefficients of correlation existed between quality point average in Agricultural Engineering 254, 244, 334 & 306 and rank in high school graduating class, high school quality point average, final college quality point average, mathematics placement test score, and third-quality point average.

In comparing semesters of high school courses with the tendency to graduate from college, it was found that the students who were graduated had completed .45 more mean semesters of high school vocational agriculture and .38 more mean semesters of mathematics than the students who were not graduated from college. The differences in mean semesters of physics and chemistry were .16 and .04 respectively in favor of students who were graduated. Semesters of high school vocational agriculture and mathematics both yielded positive correlations significant at the five percent level, whereas semesters of chemistry and physics yielded nonsignificant coefficients of correlation when compared to final college quality point average.

HOERNER, THOMAS A.
Factors Related to Employment of Iowa
State University Graduates in Agricultural
Education. Dissertation, Ph.D., 1965,
Iowa State University of Science and Technology. 170 p. Library, Iowa State University of Science and Technology, Ames.

Purpose -- To determine the factors that influenced the employment tenure of men who qualified to teach vocational agriculture.

Method -- Data were obtained from the graduates' permanent records in the office of Registrar and from an eight-page questionnaire mailed to each graduate. The 1022 individuals who were graduated during the period, January 1, 1940 to July 1, 1964 were studied.

Findings -- The major findings were: (1) 89 percent of the graduates were farm-reared; (2) 59.3 percent of the parents of graduates were farm owner-operators or managers; (3) 53 percent of the graduates had completed 1 or more semesters of vocational agriculture, whereas 33.4 percent had completed 7 to 8 semesters in high school; (4) family members were responsible for influencing 44.5 percent of the graduates' attendance at college; (5) 43.3 percent of the graduates were aware of the vocational agriculture teaching profession prior to college enrollment; (6) average tenure in vocational agriculture teaching was 3.0 years for all graduates, whereas the graduates who had entered teaching directly after graduation taught an average of 5.4 years; (7) the 186 graduates (18.2 percent) who were teaching in 1964 had taught an average of 7.0 years; (8) 654 graduates (64.0 percent) had taught vocational agriculture at sometime since graduation, whereas 570 graduates (55.8 percent) had entered teaching directly after college graduation; (9) first employment areas of graduates included vocational agriculture teaching, 56 percent; G.I. on-farm training program, 8.7 percent; extension service, 5.9 percent; farming, 5.5 percent; and high school teacher other than vocational agriculture, 2.6 percent; (10) mean first employment income was $4,524 for the vocational agriculture instructors, whereas the mean income for all graduates was $4,440; (11) employment areas in 1964 included vocational agriculture teaching, 18.2 percent; farming, 10.3 percent; feed and seed business, 7.2 percent; extension service, 6.8 percent; high school teacher other than vocational agriculture, 6.7 percent; and government work, 5.2 percent; (12) average income in 1963 for all graduates was $8,002, whereas vocational agriculture instructors reported a mean 1963 income of $7,000; (13) factors which had the greatest influence on the graduate's decision to enter the first employment area were felt best trained, working closely with people, freedom and independence of the job, salary, working closely with people, opportunity for advancement, and security; and (15) the graduates who had entered vocational agriculture teaching, but left for other occupations, rated long hours and evening responsibilities, salary and advancement opportunities, community factors, interpersonal problems, and failure to adjust to the teaching assignment as having the greatest influence on their decision to leave the profession.

HOLZ, ALFRED H.

Approved Livestock Production Practices Used by Farmers in Brookings County, South Dakota. Field Study, M.V. Ed., 1962, Iowa State University of Science and Technology. 65 p. Department of Education, Iowa State University of Science and Technology, Ames.

Purposes. -- The purposes in conducting this study were to determine (1) the extent that the farmers of Brookings County, South Dakota were using practices in beef, dairy and swine production recommended by the South Dakota State College, (2) the relationship between the size of farm, size of livestock enterprise and the practices being used, (3) the relationship between the educational background of the operator and the size of enterprise maintained, (4) the relationship between the age of the operator and the extent of use of approved practices, and (5) the relationship between the ownership status of the operator and size of the livestock enterprise.

Method. -- A questionnaire was used to determine the approved livestock production practices used by Brookings County, South Dakota farmers. The questionnaire contained 30 dairy, 39 swine, and 40 beef practices approved by the specialists of the SouthDakota State College. The questionnaires were mailed to all farmers in an area six miles wide and 12 miles long. A total of 121 questionnaires were mailed and 95 were returned.

Findings. -- It was found that farmers who specialized in fewer livestock enterprises were using more of the recommended practices.

Young operators had the largest median numbers of dairy cows and dairy practices used. They used 56.7 per cent of the dairy practices as compared to a median of 46.2 per cent used by dairymen 55 to 75 years of age.

The middle-aged group of operators had the largest median number of cows in their beef herds, and also had the largest swine enterprises. The median number of swine in the enterprises of the middle-aged operators was 124.5. The farmers aged 55 to 75 years generally had beef as their major livestock enterprise.

Large farms were associated with a large number of enterprises per farm, large numbers within the specific livestock enterprises, and a high percentage of approved practices used in each of the three livestock enterprises. The size of the swine herd was not associated with the size of the farm, however.

Owners had an average of 1.87 livestock enterprises per farm, whereas renters had 2.12 per farm. Renters used fewer beef practices than owner-renters. The median percentage of beef practices used by renters was 45.5, whereas the median for owner-renters was 64.5.

A record of the livestock enterprises was kept by only 21 per cent of the beef operators, 11 per cent of the dairymen, and 28 per cent of the hog producers.

HOYT, LINDLEY JOHN
Competencies in Livestock Marketing Needed by
Farmers. Thesis, M.S., 1965, Iowa State University of Science and Technology. 120 p.
Library, Iowa State University of Science and
Technology, Ames.

Purpose -- (1) To determine the competencies needed by beef, sheep and swine producers to be successful in livestock marketing, (2) to determine certain characteristics of successful producers and their relationship to degree of competency needed and possessed, and (3) to determine educational needs of future replacement beef, sheep and swine producers in the area of livestock marketing.

Method -- A list of 74 competencies in livestock marketing was developed by a panel of livestock specialists and submitted in questionnaire form to a selected sample of 100 beef, 100 sheep and 100 swine producers in Iowa, all of whom were classed as outstanding producers. Of the competencies identified, 35 were abilities and 39 were understandings. Responses (80 percent) indicating degree of competence needed and possessed were analyzed using mean scores.

Findings -- For the beef producers, highest mean scores for degree of competence needed were found for the understandings of: county, state and national beef promotional organizations; consumer demands for beef, and; livestock loss and factors causing such loss. Highest rated abilities were: to estimate grade and yield of cattle, and; to figure returns above costs.

In the area of sheep production, highest mean scores for degree of competence needed were found for the understandings of: consumer demand for lamb; government wool support programs; livestock loss and factors affecting such loss; and for the ability to do a good job of buying lambs.

For the swine producers, highest mean scores for degree of competence needed were found for the understanding of the influence of heritability factors on market grade or dressing percentage, and for the abilities to: figure feed conversion of pigs above 200 pounds; evaluate methods of marketing and select the method providing the greatest return, and; select the market which gives the best return.

There were at least 23 competencies necessary for success in beef marketing, 25 in sheep marketing and 19 in swine marketing. Comparisons among groups showed the following relations between total overall scores for competence needed and possessed: (1) livestock producers with fewer years of experience had wider differences than those with more experience; (2) sheep producers had wider differences for men with more formal education, whereas beef producers had wider differences for those with less formal education; (3) increased years of vocational agriculture tended to decrease the differences; (4) men without training in livestock production in young farmer, adult evening class or veterans on-farm training had wider differences than those who had such training; (5) smaller size of livestock enterprise tended to widen the differences, except with the sheep producers where the reverse was true; (6) producers who bred grade and combination livestock tended to have wider differences than purebred and crossbred producers.

IVERSON, ROGER DUANE
Participant Response to the Teaching of
Principles in a County Extension Agronomy
School. Thesis, M.S. 1964. Library, Iowa
State University of Science and Technology,
Ames.

Purpose -- The three major purposes of this study were (1) to determine the personal, social and economic characteristics of those persons who attend a county extension agronomy school where scientific principles are emphasized, (2) to determine why people participate in a county extension agronomy school where scientific principles are emphasized, and (3) to determine the change in knowledge and understanding realized by persons through attendance of a county extension agronomy school where scientific principles are emphasized. The two minor purposes were to obtain participant appraisal of a county extension agronomy school where scientific principles are emphasized, and to determine what kind of follow-up educational efforts would be most likely attended by persons who have participated in a county extension agronomy school where scientific principles are emphasized.

Method -- A questionnaire was given on the first day of school to determine the importance of economic, social, and intellectual reasons for attending. A test was also given on the first day to determine a "pre-school knowledge score." At the completion of the school a test was given to determine a "post-school knowledge score" and a questionnaire which included evaluation questions and provided an opportunity for participants to indicate preferences for follow-up educational programs was also given.

Findings -- Seventy-two of the 75 persons attending all three days of the agronomy school were farm operators. The agronomy school was the only extension education meeting attended during 1963 by 57 of the participants. The author concluded that the participants exhibited many of the characteristics of "early adopters" as described by rural sociologists.

Economic reasons were indicated by the participants as having the greatest influence on their decision to attend the school. Intellectual reasons were also relatively important and social reasons were of considerably less importance.

Over 77 percent of the agronomy school participants reported that the material covered in the school was "identical to" or "mostly" what they expected. In regard to the emphasis given scientific principles and practices, 49.4 percent of the participants thought the relative emphasis was about right and 45.3 percent said they wished more emphasis had been placed on practical soils management and crop production facilities. Over 74 percent said the agronomy school was of "much" or "great" value to them.

In selecting from a list of 10 possible follow-up educational programs, participants indicated that they would be most likely to attend schools which were described as intermediate in the amount of emphasis given scientific principles. Over 73 percent of all first choices, from the list of 10 possible programs, were made for the two programs having this characteristic.

JABRO, SALIM H.

Curricula in Agricultural Education at the
Land-Grant Colleges and State Universities in
the United States. Dissertation, Ph.D., 1962,
The Iowa State University of Science and Technology. 270 p. Library, The Iowa State University
of Science and Technology, Ames.

Purposes. -- The purposes of the study were to analyze the curricula in agricultural education of 43 land-grant institutions to determine similarities, differences, innovations and trends in general education, technical agriculture and professional education courses, and credits required for graduation; the professional participation experience provided the agricultural education trainees; and the obtaining of recommendations for the improvement of future programs.

Method. -- Questionnaires returned by the heads of agricultural education departments in 43 institutions were the major sources of information.

Findings. -- The credits recommended for graduation varied among the regions from a median of 132 to 141.5 semester credits. This was in comparison to 133 to 143 credits in present curricula. The number of credits recommended in general education varied among the regions from medians of 50 to 61 credits. This was in comparison to medians of 56.5 to 59 credits in present curricula. In technical agriculture regional medians of 53 to 56 credits were recommended. Medians of 55 to 58 credits were required in present curricula. Regional medians of 20.5 to 26 credits in professional education were recommended. Medians of 21 to 26 credits were presently required.

In the main the curricula were thought to be adequate in 35 or more of the 43 institutions in the areas of animal nutrition, basic soils, botany, basic communications, chemistry, directed student teaching, and methods of teaching vocational agriculture in high school. The weaknesses found appear to justify the following recommendations:

(1) Improve the quality of teaching and the content of courses.
(2) Provide more specialization and flexibility in the selection of courses by students in fields of technical agriculture.
(3) Lengthen the student teaching period.
(4) Improve methods used in selecting prospective teacher candidates.
(5) Establish follow-up programs for beginning teachers.
(6) Provide more adequate instruction in the areas of farm management, farm accounting, methods of teaching farm mechanics, farm machinery, buildings and equipment, crop production, forage crops, soil management, poultry, dairy, swine, beef and sheep production and marketing, college mathematics, physics, adult and young farmer education, summer experience, and counseling and guidance techniques.

JAMES, ROSS ELDON

Factors Affecting Young Farmer Class
Participation, Thesis, M.S., 1959, Iowa
State University of Science and Technology,
107 p. Library, Iowa State University of
Science and Technology, Ames.

Purpose. — The purpose of this study was to investigate the participation of rural young men in vocational agriculture young farmer programs. It was felt that a combination of factors might influence the extent of participation of young farmers in these programs. The study was designed to discover these factors and to ascertain their relationship to attendance and effectiveness of the program in meeting the needs of the participants. The four areas of this study were; (1) attendance, (2) evaluation of instructional methods, (3) evaluation of program meeting the needs and interests of participants, and (4) scheduling and development.

Method. — All Iowa public schools offering young farmers programs during the school year of 1957-1958 were asked to contribute data to this study. A survey questionnaire was filled in by 302 young farmers from 33 schools, of these, 212 questionnaires were useable. A four-way classification by marital status and previous training was used in all areas of the study. Other groupings of the data were used to refine the study in specific areas. Mean scores were calculated for all instructional methods and evaluations of the program meeting the needs.

Findings and Interpretations. — It was found that single young farmers had an average attendance significantly higher than married men. Those young farmers who had had vocational agriculture training had significantly higher average attendance than did those who had not had such training. Twenty-four per cent of the young farmers attended 5 or less meetings, 28 per cent attended between 6 and eleven meetings, and 48 per cent of the young farmers participated in more than eleven of the scheduled meetings.

The young farmers' evaluation of 14 instructional methods was based upon mean scores. By ranking of mean scores it was found that group discussion was valued highest with instructor demonstrations and films and slides falling in second and third positions. Cooperative group projects and laboratory work were on the bottom of the scale. By high and low attendance schools, individuals in both the high and low attendance groups ranked group discussion as number one in methods. Cooperative group projects and laboratory work were still on the bottom. The low group ranked shopwork higher than did the high group. On-farm instruction ranked lower than was expected.

JAMES, ROSS ELDON

Concerning the extent to which the program was meeting the needs, based upon the grouping of participants by high, medium and low level of farming status, it was found that medium status farmers rated the value of the program, in meeting the interests, in the medium range between the high and low status groups. The high status group indicated that management and improvement interests were met at a higher level than was indicated by the medium group. For adjustment interests, the high status group rated the program lower in meeting the interest than did the medium group.

Findings in this study indicated that the level of attendance in young farmer programs was more closely related to other factors than to the experience of the instructor directing such programs.

JOHNSON, CARLTON EGBERT

Factors Associated with Fatal Accidents of
Rural Residents of Iowa, 1947 to 1953. Dissertation, Ph.D., 1956, Iowa State College.
247 p. Library, Iowa State College, Ames.

Purpose. -- To determine some of the factors associated with fatal accidents of rural residents of Iowa during 1947 to 1953, inclusive, using death certificates as a source of information.

Method. -- Rural residents as used in this study included all inhabitants of unincorporated places, and all farmers, retired farmers, farm laborers, or family members of these persons living in incorporated places.

The rate of accidental death was calculated by multiplying the rural farm population figures (U. S. Census for 1950) by a correction factor, 1.19, to obtain figures which were assumed to represent the population of this study as has been described. A code was developed for the classification of farm accidents. The data so classified were tabulated by use of International Business Machine Equipment.

Findings and Interpretations. -- There were 3599 accidental deaths to rural residents of Iowa, as defined in this study, during the seven-year period 1947 to 1953. The rates 57.6 for the age group 15 to 19, and 57.4 for the age group 20 to 24 were the highest for any of the age groups from 1 to 60 years of age. The rate of accidental death increased rapidly from 112.9 for persons in the age group 65 to 69 to a high of 2967.2 for persons age 90 or more.

Of all fatal accidents to rural residents of Iowa during the period of the study, 79.3 per cent occurred to males. The 15 to 19-year age group of single males had the largest number of fatal accidents.

When the victims of fatal accidents were classified according to occupation 1214, or 33.7 per cent, of the 3599 fatal accidents had occurred to farmers, which is twice as many as for any other occupational group in this study. Of the 3599 fatal accidents investigated, 39.2 per cent occurred on the street or highway, 27.5 per cent occurred in the home area, and 21.7 per cent occurred on the farm.

When fatal accidents were classified according to vehicle, object, or element involved, motor vehicles accounted for 35.9 per cent of all fatal accidents; buildings ranked second with 18.3 per cent, and tractors third with 8.4 per cent. Two thirds of all tractor accidents occurred between noon and midnight. Of the automobile fatalities, 52.6 per cent resulted from collision. Of the tractor accidents, 60.9 per cent involved overturning. Of the accidents in buildings, 90.6 per cent were due to falls.

JOHNSON, CARLTON EGBERT

In determining implications of these findings for safety education, the following assumptions are made: most fatal accidents can be prevented; a person cannot consciously avoid a fatal accident unless he is aware that a hazard exists; every educable person from infancy through old age should be taught to recognize hazards; means of avoiding accidents can be learned; and finally, people can be motivated to reduce hazards and the resulting fatalities.

JOHNSON, ERRIC J.

Facilities for Farm Mechanics in Negro
Department of Vocational Agriculture in
Texas. Thesis, M.S., 1955, Iowa State
College. 107 p. Library, Iowa State
College, Ames.

Purpose. -- To determine the facilities available, the areas of instruction included in farm mechanics, and the extent to which facilities available are factors limiting instruction in farm mechanics.

Method. -- Questionnaires were sent to the 181 negro instructors of vocational agriculture in Texas. Usable returns were received from 133 instructors. Data concerning the emphasis upon instruction in 13 areas of farm mechanics were presented on a basis of the enrollment in vocational agriculture and also on a basis of the square feet of floor space in the farm shop.

Findings and Interpretations. -- Most of the instructors were teaching farm mechanics as an integrated program offering some work each year in grades 9 to 12 inclusive. In most cases, the schools with large amounts of floor space in the farm shop had larger percentages of general power tools than the schools with medium and small amounts of floor space in the shop. The 38 schools classified as having large amounts of floor space in the farm shop had 78.0 square feet of floor space per student in the largest farm shop class, whereas the 44 schools with small amounts of floor space in the farm shop had only 21.4 square feet of floor space per student in the largest farm shop class. The 133 instructors reported that they were placing the most emphasis upon instruction in the areas soil and water conservation, farm carpentry, and farm safety. The least emphasis was being placed upon leather and harness repair, arc welding, and oxy-acetylene welding. There seemed to be little relationship between enrollment in vocational agriculture and the amount of emphasis placed by teachers upon instruction in the various areas of farm mechanics.

JOHNSON, WILBUR B.

Instruction in Agricultural Cooperation by
Negro Teachers of Vocational Agriculture
and of Farm Veterans in Georgia. Thesis,
M. S., 1952, Iowa State College. 65 p.
Library, Iowa State College, Ames.

Purpose.-- To find the emphasis being given to agricultural cooperatives in the instructional programs of vocational agriculture and of veterans' institutional-on-farm training for Negroes in Georgia.

Method. -- A questionnaire was developed, and copies were sent to 194 teachers of vocational agriculture and of farm veterans in Georgia. Responses were received from 110 teachers. In many cases chi-square values were computed to determine significance of the data.

Findings and Interpretations. -- Of the teachers responding, 44 had taken a course in college devoted primarily to cooperatives. Of the 59 respondents who had not taken such a course, 44 indicated that they had received some training in cooperatives in such courses as agricultural economics, rural sociology, and agricultural education. Fifty percent of the teachers indicated that they had not received training in important areas of cooperatives. More than 50 percent of all the teachers desired additional training in cooperatives and thought that they should have received more training in cooperatives in their undergraduate college courses.

Of 6,686 all-day boys, adult farmers, young farmers, and veterans enrolled in class groups, 2,459 were participating in cooperative activities. Additional students were reported as participating in cooperative groups, but the number of such students was not given. Adult farmers were participating to the greatest extent in cooperative marketing, purchasing, production, and service activities. More students participated in cooperative activities, more cooperatives were being organized in communities, and better organization of cooperatives were reported by teachers who had taken a course in college devoted primarily to cooperatives than were reported by teachers who had not taken such a course. No significant relationship was found between teachers' tenure and number of cooperative activities in which their students were participating.

Teachers of high-school classes in vocational agriculture were devoting 3.1 percent of instructional time in the classroom to cooperatives as compared to 1.7 percent by teachers of farm veterans. The majority of teachers and teacher trainers thought that more time should have been devoted to instruction in cooperatives. The teachers who devoted no instructional time to cooperatives gave as reasons that there were no cooperatives in their community and that they had not received enough training in the subject. Sixty-five percent of the teachers thought that cooperatives should be taught as a way of life, and 85 percent thought that cooperatives should be taught as a way of increasing financial returns.

JONES, GEORGE M.

Establishment in Farming of Present and
Former Negro Pupils of Vocational Agriculture in Leake County, Mississippi.
Thesis, M.S., 1952, Iowa State College.
107 p. Library, Iowa State College, Ames.

Purpose. -- To obtain information concerning the supervised farming programs carried on by the Negro pupils enrolled in vocational agriculture in high schools of Leake County, Mississippi; to obtain information on the farming status of the parents of the boys enrolled in vocational agriculture; to obtain information on the occupational status of the graduates one year after graduation; to obtain information on the establishment in farming of those graduates who remained on the farm; and to determine the relationship between the number and the length of time the boy had been enrolled in vocational agriculture.

Method. -- A questionnaire was used in obtaining the data. Each teacher and student of vocational agriculture in the Negro high schools of Leake County, Miss., was interviewed personally by the investigator.

Findings and Interpretations. -- There were 214 boys enrolled in vocational agriculture in the high schools of Leake County, Miss. The pupils were distributed as follows: Leake County Agricultural High School had an enrollment of 54 pupils, Harmony Vocational School had 58 pupils, Conway Vocational School had 54 pupils and Wesley Chapel High School had 48 pupils.

The data indicate that the lower the period of training in vocational agriculture, the broader the supervised farming programs. Boys in the senior and out-of-school groups included more crop production projects in their farming programs than did boys in the freshmen, sophomore, or junior groups. There was a general increase in the number of livestock productive enterprises per boy starting with the boys in the freshman group and continuing through those in the out-of-school group. It was found that the longer the time the boys had been in training, the larger the number of building improvement projects completed per boy in the schools studied. The number of farmstead improvements completed per boy increased from 1.23 per freshman pupil to 3.92 improvements completed per out-of-school boy. The number of livestock enterprise improvement projects increased with each additional year of training from the freshman group through the out-of-school group. The pupils in the senior and out-of-school groups completed nearly twice as many crop improvement projects per boy as did freshmen, sophomores, and juniors.

Senior pupils in vocational agriculture completed nearly twice as many supplementary farm practices as did freshmen boys. Sophomores completed more practices than freshmen, and juniors completed more than sophomores. The out-of-school boys completed fewer practices per boy than did either the juniors or the seniors. The findings of this study seemed to indicate that the farming status of pupils improved with each additional year of training in vocational agriculture.

JONES, ROBERT G.
Influence of High School Vocational
Agriculture on the Status of Graduates
in Nonfarm Occupations Not Related to
Farming, Thesis, M.S., 1959, Iowa State
University of Science and Technology,
109 p., Library, Iowa State University of
Science and Technology, Ames.

Purpose -- The objective of this study was to determine the relation between high school vocational agriculture training and the status of the graduates in nonfarm occupations not related to farming.

Method -- Forty-five schools that offered vocational agriculture during 11 of 12 years from 1943 to 1954, inclusive, were paired with 45 schools which had not offered vocational agriculture during this period. The schools were located in north-central and east-central Iowa. From these 45 pairs of schools, 20 pairs were randomly selected. These schools were visited to obtain the name, address, occupation and other information concerning all of the farm-reared male graduates of each school for the period 1943 through 1954. Questionnaires were mailed to those graduates who were in occupations other than farming. A total of 1244 graduates were mailed questionnaires. Nine hundred and sixty-five of these graduates responded and were classified as being in three nonfarm occupational areas. Five hundred and thirty-five graduates were classified as being in occupations not related to farming. A final sample of 240 graduates were randomly selected from this group. Six graduates from each of the schools were selected. Three from each school had been graduates from 1943 to 1948 and three between 1949 and 1954.

Findings and Interpretations -- Of 1,545 farm reared graduates from the schools offering vocational agriculture, 46.5 percent were engaged in farming and 47.8 percent were engaged in nonfarm occupations in 1958. Of the 1,328 graduates from schools not offering vocational agriculture, 40.6 percent were farming and 56 percent were engaged in nonfarm occupations in 1958. The 1958 occupational status was unknown for 5.7 percent of the former group and for 3.4 percent of the latter group.

A comparison of home characteristics of the two groups of graduates resulted in nonsignificant differences for the following items: (a) total acres operated, (b) parental land ownership, (c) age of fathers, (d) education of fathers, (e) education of mothers, (f) number of younger brothers, (g) number of older brothers, and (h) total number of brothers.

Vocational agriculture graduates were supervising a greater number of workers than were the nonvocational agriculture graduates. These differences were significant at the one percent level. There were no significant differences between the two groups in the following occupational characteristics: (a) the number of months in their present occupation, (b) number of occupations held since graduation, and (c) estimated value of a knowledge of farming in their present occupations.

JONES, ROBERT G.

Differences that were significant at the one percent level were noted when occupational migration was compared. It was found that more of the vocational agriculture graduates remained in their home communities. There were no significant differences between the two groups with respect to military service status, type of employment and scholastic rank in class at time of graduation.

Occupational status of the graduates was measured by occupational income, occupational prestige and expressed occupational satisfaction. Coefficient of correlations for these three criteria resulted in values that were significant at the one percent level.

There were no significant differences between the two groups of graduates in occupational status as measured by occupational prestige and occupational income. The nonvocational agriculture graduates expressed a higher degree of occupational satisfaction. This difference was significant at the five percent level.

KAHLER, ALAN ARNOLD
Competencies in Agriculture Needed by Males
Employed in Retail Farm Machinery Distribution. Thesis, M.S., 1964, Iowa State
University of Science and Technology. 201 p.
Library, Iowa State University of Science
and Technology, Ames.

Purpose -- To determine the important agricultural competencies needed by males employed in retail farm machinery distribution, the degree of competency needed and possessed by employees in each competency, and the employment opportunities in that industry in Iowa.

Method -- A panel of the fifteen most progressive farm machinery dealers in Iowa listed the important agricultural competencies needed by employees in the various occupational areas in the retail farm machinery industry. A questionnaire was developed around this list and submitted to 100 outstanding dealers and their employees (179) in Iowa with instructions to indicate (1) the degree the competencies were needed in order to effectively perform the functions of their jobs and (2) the degree the competencies were possessed by the employee. An additional questionnaire was developed and sent to all farm machinery dealers in the state (1120) asking each dealer to indicate the number of persons employed in 1958, 1963, and to be employed in 1968 and the ages of each employee presently employed. Responses indicating degree of competency needed and possessed were analyzed using mean scores.

Findings -- Of the 56 competencies listed by the panel, 31 were understanding and 25 were abilities. Thirty-one competencies pertained to dealership management and service, 14 were in the area of farm management, and 11 in the areas of livestock and crop production. Highest overall scores were found for the understanding of the types of machinery used in the local farming area, machinery financing procedures, economic reasons for use of labor saving machines, capabilities of present and prospective farm machines, farm credit procedures and the ability to manage trade-in inventory, estimate trade-in values of used machinery, make machinery valuations, adapt machinery size to farm operation and locate failures and make repairs quickly and efficiently. Competencies in farm management had the highest consistent scores when compared with the scores of competencies in other areas.

Employer and employee scores for all competencies were higher for the degree of competency needed than for the degree of competency possessed. Employee scores were higher than employer scores for both degree competencies were needed and possessed.

As years of farm experience of managers, clerical, parts and service employees increased, the scores for degree of competency needed and possessed increased. Conversely, the degree of competency needed and possessed decreased for sales employees as years of farm experience increased.

KAHLER, ALAN ARNOLD

The degree competencies were needed and possessed for all employees increased as years of vocational agriculture training increased.

Both the degree of competency needed and possessed for each competency decreased as the size of business increased. The highest scores were found for employees in businesses with gross volumes of sales under $300,000. The lowest scores were found for those in businesses with gross volumes of sales of $600,000 or higher.

KASPERBAUER, MICHAEL JOHN
Relationship of High School Vocational
Agriculture and Military Service to
Establishment of Graduates in Farming.
Thesis, M.S., 1957, Iowa State College.
76 p. Library, Iowa State College, Ames.

Purpose -- To determine whether vocational agriculture and military service influenced the farm operations of 200 high school graduates who were living on north central and eastern Iowa farms when the information was collected.

Method -- The information was gathered during personal interviews with each of the 200 high school graduates involved in this study. The 200 farmers consisted of 100 vocational agriculture graduates and 100 graduates of high school that did not offer vocational agriculture during the period of years involved. Each group of 100 graduates consisted of 50 military veterans and 50 nonveterans. And, each group of 50 graduates included 25 farmers who were graduated during the 1943-1948 period, and 25 who were graduated during the 1949-1954 period of years.

Crop and livestock production data from each farm was used to calculate the gross production of the farm. The gross products were then used to statistically compare the establishment in farming of the various groups and subgroups of graduates.

Findings and Interpretations -- This study indicated that the vocational agriculture graduates had significantly higher mean livestock, crop and total gross products, and were better established in farming than were those who had graduated from high schools that did not offer vocational agriculture.

Veteran status appeared to have no effect on mean total gross products. However, the group of veterans had a lower mean livestock and a higher mean crop gross product than had the group of nonveterans. These differences were nonsignificant.

Interactions between vocational agriculture status and veteran status were also nonsignificant.

KEARNEY, RICHARD JOSEPH
Relationship of High School Size to
Achievement in the Division of Agriculture
at Iowa State College. Thesis, MS., 1954,
Iowa State College. 23 p. Library, Iowa
State College, Ames.

Purpose -- The purpose of this study was to determine the relationship, if any, between the size of the high school the student attended and subsequent academic success in college.

Method -- The data used in this study was made available through the cooperation of the Office of the Registrar at Iowa State College and the Iowa State College Testing Bureau. The group investigated consisted of a sample taken from the freshman class which entered Iowa State College in the fall quarter of 1951.

Findings -- The findings indicated that when individual differences in academic achievement and scholastic aptitude were held constant the size of the high school from which the student was graduated probably does not influence academic achievement in the Division of Agriculture at Iowa State College. This conclusion should be interpreted with full recognition of the sample of the study and the fact that only one of many possible variables pertinent to individual development was investigated.

The full impact of the size of school on individual development should be further investigated employing samples more representative of the total high school population, using such criteria as:

1. Subsequent occupational success.
2. Marital stability.
3. Leadership in civic activities.
4. Health and general welfare.
5. General educational achievement.
6. Conformity to cultural mores.
7. Emotional maturity at the college and adult level.
8. Social maturity at the college and adult level.

KNECHT, VERNE H.
Factors Affecting the Success of
Supervised Farming Programs in Vocational Agriculture, Thesis, M.S., 1959,
Iowa State University of Science and
Technology, 81 p., Library, Iowa State
University of Science and Technology, Ames.

Purpose -- To investigate the factors that might contribute to the success of a student's farming program.

Method -- Seventeen vocational agriculture departments offering instruction continuously during the four-year period 1954 to 1957 were selected in the eastern livestock area of Iowa. Vocational agriculture instructors administered the questionnaire in each of his vocational agriculture classes and after completion the questionnaires were returned. The number of high school students were reduced by random sampling to 100 in each of the four grades. The scope of work completed by the vocational agriculture student in his supervised farming program was shown by an index score.

Findings and Interpretations -- Little relationship was found between the mean farming program scores, the number of brothers and sisters, the education of the father and the education of the mother. The mean farming program score for seniors whose mothers had completed the eighth grade but had not been graduated from high school was 3.94, which also equalled the mean score (3.98) of the boys whose mothers were high school graduates. Seniors who were sons of mothers who had attended or were graduates of college had a score of 5.27.

Forty-eight percent of the ninth graders, fifty-one percent of the tenth graders, sixty percent of the eleventh graders, and fifty-five percent of the twelfth graders chose farming as their occupation at the time they were freshmen.

Senior boys who had been enrolled in vocational agriculture for one year had a farming program score of 1.60; those who had been enrolled for two years had a score of 2.17; those enrolled for three years had a score of 1.60. These scores were very low as compared to the score of 4.44 for the boys who had been enrolled for four years. Participation in music and sports did not interfere with the development of good farming programs.

Only fifty-two percent of the boys in the entire sample indicated that their desire to become a farmer was "very much" a factor in enrolling in vocational agriculture. Seniors whose fathers were under 45 or over 50 years of age were more inclined to lose interest in the farming program during the last year in high school than were students whose fathers were in the 45 to 50 year age group. The data indicated that boys whose fathers had limited educational backgrounds had difficulty in developing comprehensive farming programs.

KNECHT, VERNE H.

Thirty percent of the ninth, thirty-eight percent of the tenth, twenty-eight percent of the eleventh and thirty-six percent of the seniors indicated that they were undecided in regard to occupational choices as freshmen. The data indicate that teachers of vocational agriculture may need to evaluate the influence of a desire to be a farmer on the part of the student on the development of a satisfactory supervised farming program that will equip him with the knowledge and skills needed in the occupation of farming.

KOMASA, NOEL JOSEPH
Ratings of High School Course Areas by
Farm Male Graduates in Nonfarm Occupations.
Thesis, M.S., 1961, Iowa State University
of Science and Technology. 91 p. Library,
Iowa State University of Science and
Technology, Ames.

Purpose — This study was to determine the relationship between satisfaction, salary, and prestige of occupation of male farm graduates in nonfarm occupations, and the ratings given course areas taken in high school.

Method — Twenty pairs of high schools were selected on the basis of location, population of town, high school enrollment, soil type, nationality and religion of people and type of farming. The investigators visited the 40 high schools to obtain information concerning the farm male graduates and to secure the names and addresses of the graduates so that a questionnaire could be mailed to each of them. A total of 1,244 questionnaires were mailed and 925 were returned.

Findings — There were indications that the ratings of mathematics courses by high school graduates as being beneficial were related to the amount of salary received. The graduates who rated the mathematics course high also indicated a high degree of satisfaction in their occupations.

The relationships between the ratings of the biological science courses and each, salary, the prestige rating and the degree of satisfaction in occupations when tested by analysis of variance were found to be nonsignificant. Only 6 per cent of the graduates rated the biological science courses as being of "very much" value, whereas, 48 per cent rated them as being of "no" value to them.

Sixty-four per cent of the total group gave a rating of the physical science as being of value to them, whereas 36 per cent stated this course area was of no value to them in relation to the amount of salaries received in their occupations. There was a nonsignificant relationship between the prestige ratings of their occupations and the physical science courses.

Graduates in the high income group rated social science courses as being of more value to them than did the graduates in the low income group. A significant relationship was found between the ratings of the social science courses completed in high school and the degree of satisfaction in their occupations. There was a nonsignificant relationship between the prestige ratings of their occupations and the physical science courses.

The relationships between the ratings of the industrial arts courses by the farm male graduates to salary received, to the degree of satisfaction in their occupations, and to the prestige ratings of their occupations were all found to be nonsignificant.

KOMASA, NOEL JOSEPH

Forty-two per cent of the graduates in the $5000 or more annual salary group placed a rating of "very much" or of "much" value on vocational agriculture courses completed in high school, whereas, 29 per cent of the graduates who were receiving salaries of $4999 or less rated them similarly. More graduates who were "satisfied" or "very satisfied" in their occupations indicated that vocational agriculture courses completed in high school were of value to them in their occupations than did those who were "dissatisfied" or "very dissatisfied". There was a nonsignificant relationship between the prestige ratings of their occupation and vocational agriculture courses.

LAUTERBACH, LEWIS GUY
Occupational Status of Graduates of the
Department of Vocational Agriculture of
Osage High School. Thesis, M.S., 1956,
Iowa State College. 81 p. Library, Iowa
State College, Ames.

Purpose -- To determine if the occupational status of the farm-reared graduates of the department of vocational agriculture of the Osage High School, differed from the occupational status of farm-reared male graduates of two nearby high schools which did not offer such vocational courses during the years 1935 through 1950.

Method -- Data relevant to the study were procured by questionnaires and personal interviews from 120 of the 175 qualified graduates.

Findings and Interpretations -- At the time of the study slightly more members of the control group were farming. The reason more members of the vocational agriculture group were not farming may be explained by the fact that many more parents of the vocational agriculture group were still farming at the time of the study. Therefore, the vocational agriculture graduates had less opportunity to take over the home farm than did graduates from the control group. More vocational agriculture graduates were in occupations related to farming. More members of the control group are in occupations not related to farming and were farming parental farms.

Little difference was found in length of establishment between the two groups for the period of years 1935 through 1942, while for the 1943 through 1950 period, the vocational agriculture school group included more cases in three of the four categories of classification.

Vocational agriculture school graduates had significantly greater total assets, and significantly greater earned assets available at time of graduation from high school than did graduates from the control schools.

Vocational agriculture school graduates in all occupations were significantly more satisfied with their present occupations than were graduates from the control schools.

Vocational agriculture school graduates participated in 4-H Club programs in more highly significant numbers than did members of the control group.

Vocational agriculture school graduates placed a significantly higher value on their entire four year high school program as it applied to their present occupation and also in their family, personal, and community living.

LAWRENCE, ROGER LEE
Implications of characteristics and Attitudes
of Farm and Village Women for Home Economics
Extension Programs. Dissertation, Ph.D.,
1958, Iowa State College. 204 p. Library,
Iowa State College, Ames.

Purpose -- The purpose of the study was to examine characteristics and attitudes of farm and village women and to study the implications of these characteristics and attitudes on the administration of a home economics extension program.

Method -- The data for the study were gathered from 147 women who are heads of households who reside on farms and 111 women who are heads of households who live in the village center in the Collins, Iowa community.

Findings -- The village women were found to be older than the farm women, more of them worked outside the home for pay, they placed greater importance upon a college education for their children, and they had more of a problem with money management than did the farm women. The village women made less use of radio as a source of homemaking information.

The most striking differences between the two groups of women were in their knowledge and use of extension service. More of the farm women recognized the extension service as a source of information; they knew more about the service, had received more help from it, and had had more kinds of contacts with the service than had the village women.

No differences were demonstrated between the two groups in their educational level, the degree of importance placed on 10 values and 19 homemaking problems, their current use of recommended practices, the procedure used in adopting a new practice, their use of television as a source of homemaking information, their reaction to the community, and most of their ideas regarding the kinds of help desired from the extension service.

The general conclusion is reached that the same home economics extension program could be conducted with the village and the farm women, but in order to expect comparable results from the two groups, an educational program regarding the extension service, the services available, and ways and means of using the service should be conducted with the village women prior to launching a full scale program with the village group.

LITTLE, MORRIS C.
Leadership Qualifications of Advisers of
Negro 4-H Club Boys in Georgia. Thesis,
M.S., 1953. Iowa State College. 97 p.
Library, Iowa State College, Ames.

Purpose -- The major purpose of this study was to determine the relationship which existed between the effectiveness of advisers of Negro 4-H club boys in Georgia and their general characteristics, leadership activities, and the extent to which the advisers possessed certain personal traits and abilities, considered by the county agents to be desirable for leaders of 4-H club boys.

Method -- Schedules were used to obtain data from 200 of Georgia's 1,932 Negro 4-H club advisers, relative to their general characteristics and leadership activities. Schedules were also used to obtain 30 county agents' opinions on (1) the relative importance of certain personal traits and abilities for advisers of 4-H club boys, (2) the efficiency ratings of 160 advisers, based on their over-all success as leaders of 4-H club boys, and (3) the extent to which these advisers possessed certain personal traits and leadership abilities.

Findings -- Under general characteristics, it was found that 50% of the advisers were school teachers, 42.5% were engaged in farming, and the other 7.5% were made up largely of homemakers, small business operators, and ministers. Fifty-four percent had received some education on the college level. Thirty-seven percent had been 4-H club members for a mean of 6 years. Eighty-four percent of the advisers had family members within their household who were members in one or more farm organizations.

Under leadership activities, 90% indicated that they were currently serving as leaders for a mean of two other organizations.

Seventy-one percent indicated that they received "much" helpful information during visits with their county agents.

Thirty of the county agents responding considered five of the personal traits listed to be "of great importance" to advisers of 4-H club boys, namely, (1) interested in a better community and rural life, (2) liked and respected by 4-H club boys, (3) sincere liking for boys, (4) knows subject matter to be taught, and (5) possesses strong enthusiasm for 4-H club work.

The three leadership abilities which all of the county agents responding considered to be "of great importance" to advisers were the abilities to (1) impart information and advise club boys wisely, (2) inspire boys to do their best 4-H club work, and (3) create good will and cooperation among club boys.

One hundred sixty advisers were given efficiency ratings based on their over-all effectiveness as leaders of 4-H club boys. The county agents rated the advisers as follows: "excellent," 45; "good," 60; "fair," 45; and "poor," 10.

LOCKWOOD, LARRY LEE
Competencies Needed by Males Engaged in
Dairy Farming. Thesis, M.S., 1964, Iowa
State University of Science and Technology.
97 p. Library, Iowa State University of
Science and Technology, Ames.

Purpose -- (1) To determine the competencies needed by men engaged and successful in dairy farming, (2) to determine the relation of selected factors to the evaluation of the degree of competence needed and possessed by a selected sample of DHIA and owner sampler dairymen in Iowa, and (3) to plan for educational needs of future replacement dairy farmers.

Method -- A panel of 16 selected dairymen and Iowa State University of Science and Technology staff members identified the competencies needed by males engaged in dairy farming. A questionnaire was developed around this list and submitted to a random sample of 130 DHIA and 130 owner sampler dairymen in Iowa, with instructions to evaluate (1) the degree of competence they needed to succeed, and (2) the degree of competence they presently possessed. Responses (70 percent) indicating degree of competence needed and possessed were analyzed using mean scores.

Findings -- Of the 46 competencies listed by the panel, 11 were understandings and 35 were abilities. Highest overall scores for degree of competence needed by both groups were found for the understandings of: dairy product standards set by law and by the local milk market; methods of maintaining high sanitation standards and the use of chemicals in this operation; and for the abilities to: feed cows a balanced ration based on maintenance and production needs; make efficient use of high quality roughage; select desirable production and breeding stock; and follow a constructive breeding program. Respondents felt they possessed significantly less competency than they needed in all of the 46 competencies.

Comparisons among groups showed the following relations between total overall scores for competence needed and possessed: (1) younger dairymen had wider differences than older dairymen; (2) dairymen with fewer years of experience had wider differences than those with more experience; (3) DHIA dairymen had wider differences for men with less formal education, whereas owner sampler dairymen had wider differences for those with more formal education; (4) increases years of vocational agriculture tended to widen the differences.

Relationships between selected control variables and degree competence needed and possessed scores in 10 selected competencies were studied using correlation analysis. Highest correlation coefficients were found between the ability needed to make efficient use of high quality roughage and (1) the ability needed to feed cows a balanced ration based on maintenance and production needs (.75), and (2) the ability needed to determine amount and kind of concentrate to feed, considering dairy product prices and input costs (.58).

MABON, ELWOOD JACKSON
Competencies In Agriculture Needed by Males
Employed in Country Elevator Grain Marketing.
Thesis, M.S., 1964. Iowa State University of
Science and Technology. 160 p. Library, Iowa
State University of Science and Technology, Ames.

Purpose — To determine: (1) The important agricultural competencies needed by males employed in country elevator grain marketing; (2) the degree each agricultural competency was needed and possessed; (3) factors that influenced the degree personnel needed and possessed each agricultural competency; (4) the important nonagricultural competencies and the degree each was needed; (5) the employment opportunities in the industry in Iowa.

Method -- This was a state-wide three-phase study. Sixteen country elevator managers in well managed businesses were selected as a panel of specialists by the Iowa grain trade associations to aid in identifying the important agricultural and nonagricultural competencies needed by grain personnel. Phase 1: Questionnaires were mailed to 310 persons in 155 well managed elevators. Personnel in 143 elevators (92%) returned questionnaires. A total of 264 questionnaires were used from 132 elevators having both a manager and an employee who mailed questionnaires. Product moment correlation matrices were developed including 52 variables. Phase 2: The degree managers and employees needed nonagricultural competencies were evaluated by the panel. Phase 3: One-fourth (272 by random sample) of the most up-to-date list of 1088 country elevators was mailed employment data questionnaires (88.6% questionnaire response).

Findings — Phase 1: Thirty-seven agricultural competencies, identified by the panel, were confirmed by the 264 managers and employees to be important competencies needed by grain business personnel. Highest overall mean scores for all employees were found for the abilities to identify various types of grain, to sample, weigh and grade grain, figure and receive grain bids, analyze a farmer's credit potential and to know whether to extend credit, and the understandings of moisture migration and its effects on grain, and grain marketing procedures.

In general, the higher the level of job classification the greater the degree of importance of the competencies, according to the managers' evaluations for all three job categories and the self-evaluations by the employees. Respondents consistently indicated a need for greater competency than they possessed.

Farm experience was part of the background of 73 percent of the personnel. Comparisons indicated that the group with no farm experience needed more, but possessed less competence, than those groups with farm experience.

Vocational agriculture training was another selected factor explored. Scope for those having had this training was: managers, 33 percent; assistant managers, 37 percent; elevator men, 27 percent. These personnel consistently indicated a higher degree of competency possessed than the nonvocational agriculture groups.

MABON, ELWOOD JACKSON

Phase 2: Fifty-nine important nonagricultural competencies were identified as being needed by managers, assistant managers, clerical workers, and elevator men. The over-all mean scores for degree needed were from high to low in the above order of job classification.

Phase 3: Data indicated that 5942 males were employed full-time in the 1024 retail country grain elevators in operation in 1963. Terminal elevators were excluded. A total of 7253 male full-time employees were anticipated in the Iowa elevators during 1967--thus an increase of 1311. In addition, an estimated 1252 replacements will be needed within the four-year period.

MADDY, PAUL E.
Relationship of Size of Class and Method
of Teaching to Achievement in Economics
233 at Iowa State College. Thesis, M.S.,
1956, Iowa State College. 36 p. Library,
Iowa State College, Ames.

Purpose — To determine the relation of class size and method of instruction upon academic achievement as measured by the students' responses in written examinations concerning material covered during the course.

Method — In the present study, two sections of Economics 233, Economics Problems and Policies, were taught at Iowa State College during the Spring Quarter of 1956. Students were all from the Division of Agriculture. The small section of 32 enrolled students was taught primarily by the discussion method. The large section of 62 enrolled students was conducted primarily by lecture. Both sections were taught by the same instructor, I. W. Arthur, who also graded the written examinations. Both classes used the same textbooks, library references, and examinations. The criterion used in the present study was academic achievement as measured by a weighted sum of the scores of two written examinations given during the quarter.

Findings and Interpretations — The null hypothesis which was tested is expressed thus: There is no difference in achievement of a large section of Economics 233 students taught primarily by the lecture method, compared to a small section taught primarily by the discussion method whenever student ability as measured by the all-college average and marks in previous economics courses are held constant.

Only two of the variables had a sufficiently high correlation with the criterion to be useful as control variables. They were the all-college average and marks in previous economics courses. The correlation of these two with the criterion were 0.633 and 0.536 respectively. The correlations of the criterion and the ACE-Q, L, and T scores were very low; in fact they were much below what might have been expected.

The analysis of covariance yielded an F-value of 0.0004 which is not significant. The null hypothesis could not be rejected. From the evidence at hand any advantages or disadvantages of the large class were not demonstrat

The evidence suggests, not that there is any one best size of class or method of teaching, but rather that effective learning can be achieved with several combinations of sizes of class and methods of teaching.

MADRAMOOTOO, HARRY

Rural Youth Clubs in Agricultural Extension
in British Guiana. Thesis, M.S., 1961,
Iowa State University of Science and
Technology, Ames.

Purpose -- (1) To examine the rural youth program offered to members of 4-H and Young Farmers Clubs in British Guiana in order to obtain information as to it's educational value and usefulness. (2) To provide information which may be useful in the development of an effective rural youth section of the country's agricultural extension program.

Method -- Data were collected by means of a questionnaire from 541 4-H club members, 71 members of Young Farmers clubs, and 44 extension staff members -- all active club members or permanent extension personnel. The club respondents constituted the entire membership of 15 4-H and four Young Farmer clubs, which were selected by random sample and represented one-third the total number of clubs in existence.

The data were coded and transferred to I.B.M. cards at the Iowa State University Statistical Laboratory. Raw scores were tabulated to show relationships, and statistical treatment included computation of percentages and weighted mean scores.

Findings -- Less than 10 percent of the 612 club members were between 15 and 20 years of age, and more than four-fifths of them resided in villages. Nearby all of the 4-H'ers were in attendance at primary schools, 87 percent of the Young Farmers had left school, and only 20 of the respondents were attending secondary schools.

Family and school contacts were the chief sources of interest and helps to prospective 4-H club members, as against club officers and extension personnel in the case of older members.

Four-H'ers participated in club activities and undertook office responsibilities to a lesser extent than Young Farmers but a higher percentage of Young Farmers than 4-H'ers reported failure to complete home projects. Lack of help or instruction was the reason most reported for incomplete project work. The majority of those who failed to complete home projects reported parents with some status in farming, but 88 percent of the people reported that desirable changes in farming and homemaking had been brought about as a result of their participation in the rural youth program.

Most of the extension staff members in the sample were under 40 years of age, and personnel in this age bracket worked with more than 80 percent of the club members. Some staff members reported servicing more than four clubs and spending more than two-thirds of their time on club work. However, reports of the most satisfactory home projects were associated with staff members who serviced two clubs and devoted not more than two-thirds of their time to the rural youth program.

MADRAMOOTOO, HARRY

Club members gave the program a favorable appraisal and indicated that their participation in it had resulted in desirable changes in the homes, farms, and communities. Extension personnel indicated that project work was the most useful aspect of the program, and suggested that record-bookkeeping and demonstrations were activities most likely to effect improvements.

It was concluded that work with rural youth clubs was serving a useful purpose and that with some adjustments and improvements, the activities can contribute to agricultural efficiency and rural development of the country.

MARTIN, SHERIDAN E.
Approved Farm Practices and Labor Management Returns of Participants in the Veterans Farm Training Program in Central Iowa.
Thesis, M.S., 1954, Iowa State College.
42 p. Library, Iowa State College, Ames.

Purpose -- To determine the relationship between the extent to which approved farm practices are used and the labor and management earnings of farm operators enrolled in the veterans farm training program.

Method -- A schedule was developed which indicated the extent to which improved farm practices were used in three crops and three livestock enterprises. The schedule also included information from which the labor and management earnings of the farm operator could be determined. The schedules were administered to 250 members of veterans classes. Statistical treatment included determining the coefficient of correlation on some variables affecting labor and management earnings of the operator. In an analysis of regression, some significant variables affecting labor and management earnings of the operator were tested.

Findings and Interpretations -- A relationship, significant at the 5 percent level, was found between approved farm practices and labor and management earnings of the farm operators. Using only scores made on approved farm practices in predicting labor and management earnings of the operator each of the four units represented the extent of use of each of the 60 improved practices was worth $6.41. When the raw scores for crop acres and machinery equipment investment per acre were used with approved practice scores the value per unit of the approved practices was found to be worth $7.87. However, it should be recognized that there are many related variables to be considered in computing labor and management earnings of farm operators. Not all of these variables were tested or controlled in this study.

MAXWELL, ROBERT HAWORTH
Competencies in Agriculture Needed by Males
Employed in Wholesale Farm Machinery Distribution. Thesis, M.S., 1964, Iowa State
University of Science and Technology. 134 p.
Library, Iowa State University of Science
and Technology, Ames.

Purpose -- To determine (1) the agricultural competencies needed by males employed in wholesale farm machinery distribution, and (2) the number of employment opportunities in these occupations in Iowa.

Method -- A panel of eighteen selected employees of wholesale farm machinery firms identified the agricultural and nonagricultural competencies needed by male employees in wholesale farm machinery distribution. A questionnaire developed from this list was submitted to all employees (180) of wholesale farm machinery firms that were cooperating members of the Iowa Farm Equipment Club. Responses (80.56 percent) indicating degree of competency needed and possessed were analysed using mean scores. An additional questionnaire was sent to the 16 branch or office managers of wholesale farm machinery firms in the Iowa area to determine present and future industry employment opportunities.

Findings -- Of the 39 agricultural competencies listed by the panel, 7 were abilities and 32 were understandings; of the 37 nonagricultural competencies, 17 were abilities and 20 were understandings. Agricultural competencies needed having the highest overall scores for all employees were: the ability to conduct agricultural training sessions for others, and the understandings of agricultural economics and the farm economy, farmers' credit sources, new ideas and trends in farm operation, and machinery capabilities. Nonagricultural competencies needed having the highest overall scores were: the abilities to follow instructions accurately, make decisions based on factual and objective reasoning, accept responsibility, and the understandings of personal discipline and salesmanship.

Overall employee scores for all competencies were higher for the degree of competency needed than for the degree of competency possessed.

Relationships between selected control variables and 10 competency needed and possessed scores were studied using analysis of correlation. When control variables were compared, highest correlation coefficients were found between years of farm background and years of vocational agriculture (.168), and between commercial school attendance and occupational area (.208).

Upon comparing control variables with degree of competency needed scores, highest correlation coefficients were found between: occupational area and understanding of machine capabilities (-.42); occupational area and understanding of new ideas and trends in farm operation (-.36); total years of employment in the farm equipment industry and understanding of salesmanship (+.23).

MAXWELL, ROBERT HAWORTH

When control variables were compared with degree of competency possessed in the selected competencies, highest correlation coefficients were found between: occupational area and understanding of machine capabilities (-.36); occupational area and understanding of new ideas and trends in farm operation (-.31); total years of employment in the farm equipment industry and the ability to conduct agricultural training sessions for others (+.22).

Managers in the Iowa area indicated that in 1958 there were 693 persons employed in their businesses. By 1963, employment had increased by approximately 5 percent to 726 persons. Managers anticipated that employment would total 717 persons by 1968, a decrease of 1.2 percent. The annual replacement need for employees in the industry in the Iowa area was estimated to be 7 persons.

McCRACKEN, JOHN DAVID
Relation of High School Vocational Agriculture to Achievement in College Courses in Agronomy. Thesis, M.S., 1962, Iowa State University of Science and Technology
77 p. Library, Iowa State University of Science and Technology, Ames.

Purpose -- To determine relationships which existed between semester credits of high school vocational agriculture and achievement in college courses in agronomy.

Method -- Data were obtained in the Office of the Registrar and the Iowa State University Testing Bureau and processed through an electronic computer to obtain intercorrelations among the variables. Complete information was available for 309 male students which were then analyzed in the study.

Findings -- The coefficients of correlation obtained were compared with at the five (.112) and one (.146) percent levels of significance for 309 degrees of freedom.

No significant relationship was found between semesters of high school vocational agriculture and ACE total score (-.004), mathematics placement test score (-.016), English placement test score (.059), first quarter college quality point average (.106), final college quality point average (.062), achievement in introductory agronomy courses (.067), or the tendency to graduate from college (.050). A significant coefficient of correlation (.135) was obtained when semesters of high school vocational agriculture was compared to high school quality point average.

Highly significant coefficients of correlation were found between achievement in agronomy courses in college and all other variables except semesters of high school vocational agriculture, ACE total score, and mathematics placement test score. High school quality point average (.427) appeared to be more highly correlated with achievement in agronomy courses in college than any other variable available at the beginning of a student's college career.

In the final analysis, it appeared that the academic ability of a student, as measured by quality point averages obtained in high school and college, was more highly related to achievement in agronomy courses and to academic achievement in college than the number of semesters of vocational agriculture the student may have had in high school. It was also noted, however, that in no instance was the number of semesters of high school vocational agriculture negatively correlated with achievement in agronomy courses or with academic achievement in college.

McINTOSH, BOOKER T.
Farming Status Of Negro Farmers in
Charleston County, South Carolina,
Field Study, M. V. Ed., 1962, Iowa
State University of Science and Technology, 77 pages, Department of Education,
Iowa State University of Science and
Technology.

Purpose -- The purpose of this investigation was to determine the present farming status of Negro farm operators of Charleston County, South Carolina. Status factors studies were: (1) type of farming, (2) sources of farm and family finance, (3) farming practices followed, (4) crops and livestock produced, and (5) educational status of the Negro farm operators.

Method -- A personal interview farm survey was made of 139 operators.

Findings -- Twenty-five per cent, of the land owners were between the ages of 60 to 69 years. Ninety-four per cent owned from 1 to 40 acres of tillable land. Sixty farmers operated livestock and crops farms. Eighty-two did no off-farm work. The number of children per family ranged from 1 to 9, with a mean of 5.0 per family. Forty-seven per cent of the farm operators, who farmed from 1 to 80 acres, did not hire any additional labor during the year.

Eighty-nine per cent of the operators financed themselves. Seventy-three operators occupied homes which they believed were not in need of repairs. Small acreages of field crops were planted and low yields were harvested. Livestock production consisted mainly of swine and poultry raised mainly for family consumption. Beef cattle production involved only 29 farm operators. Dairy cows were maintained by 38 operators. No large scale livestock production programs were found.

Ownership of the necessary farm machinery and equipment was limited among operators of this study. Ninety-five operators owned no automobile. Planting of truck and garden crops were restricted to limited acreages. Low yield were harvested from most of the truck and garden crops planted. There were 117 farmers who made use of the available marketing facilities for marketing their truck and garden crops.

The improvement of the economic and living conditions of the Negro farmers of Charleston County may be brought about by the improvement in their individual farm businesses, by the obtaining of off-farm employment, or by the training of those individuals for full-time off-farm employment. These objectives should be the goals of personnel in agricultural extension.

MEILIKE, DONALD J.
Trend of Enrollment in Supervised Swine
Projects by Vocational Agriculture Pupils
and Its Relationship to Farm Income.
Thesis, M. S., 1951, Iowa State College.
86 p. Library, Iowa State College, Ames.

Purpose -- To determine the relationship between various economic factors and the percentage of pupils completing supervised swine projects in vocational agriculture in Iowa as a whole and in each of the five types of farming areas in the State over a 21-year period which included the school years 1927-1928 through 1947-1948. In addition it was desired to determine if relationships existed between these economic factors and the scope of swine projects completed in this period.

Method -- The data for the investigation were obtained from the "Supervised Farm Practice Report of Vocational Agriculture Students" (Form A-3) on file in the office of the supervisor of vocational agriculture for the State of Iowa. These annual reports were submitted to the State supervisor by the teachers of vocational agriculture in Iowa.

Findings and Interpretations -- For the State as a whole, significant correlations were found with all the measures of agricultural economic conditions and the percentage of pupils completing the swine projects. The factors used as measures were ratio of prices received to prices paid, index of prices of all farm products, average price of hogs, and the corn-hog ratio.

The index of prices of all farm products had the highest correlation with the percentage of completion but the differences in coefficients of correlation with various economic indexes were small. A coefficient of correlation of 0.526 was found between the percentage of pupils enrolled in vocational agriculture who completed swine projects and the number of swine on Iowa farms on January 1.

Coefficients of correlation between the average scope of swine projects and indexes of agricultural economic conditions were not significant for the State as a whole.

MEYER, JAMES ALBERT
Opportunities for Establishment of Young
Men in Farming in Ankeny Community School
District. Field Study, M.Ed., 1965, Iowa
State University of Science and Technology.
59 p. Education Department, Iowa State
University of Science and Technology, Ames.

Purpose -- The purpose of this study was to determine the opportunities for young men to farm in the Ankeny, Iowa community.

Method -- The method of procedure included personnally interviewing each of the 142 farm operators of the Ankeny Community School District. Each of the survey forms was completed through an interview with the operator by the vocational agriculture instructor.

Findings -- The average age of the farm operators was found to be 46 years. Seventy-nine of the operators (55.6 percent) owned land. Thirty-one of these 79 land owners also rented land. About 60 percent of the operators hired some help. The amount of hired help equaled a need for 45 full-time men per year. Nearly four of each ten operators worked off the farm. Twenty years was the average amount of time that each operator had been farming. Most of the operators who worked off the farm were employed in an agricultural job and did their farming on weekends and before and after work.

About 3 percent of the operators planned to retire each year from 1965 through 1985 or about 4.4 operators will leave the farm yearly. Twenty percent of the operators had no sons, 41 percent had one son, and 38.7 percent had two sons. Sixty-seven percent of the 206 operators' sons studied were at home. About equal numbers of sons were employed in professional, operative and farming occupations.

The study revealed little relationship between the number of years the father had farmed and the occupation of the son. About 25 percent of the sons with occupations, were farming. There was little correlation between the education of the operator and the occupation of the son.

Based on projected retirement from farming, expected deaths, and decreases in number of farms, it appears that an average of 2.4 new farmers will be needed in the Ankeny School District each year. This represents about 40 percent of the average number of operators' sons that will be graduating from high school each year. Since only 23 percent of the sons are now farming, more of the sons will need to be encouraged to go into farming in the future to meet the needs of the community.

MILLER, DIRK W.
Factors Affecting Occupational Choices
of Seniors in Eight Iowa High Schools.
Field Study, M.Ed., 1963. Iowa State
University. 97 p. Agricultural Education
Department.

Purpose -- This study was designed to determine the factors that influenced the occupational choices of the seniors in eight central Iowa high schools.

Method -- Data were obtained from completed questionnaires returned by 539 seniors, of which 420 were usable.

Findings -- Seventy-six per cent of the graduates, whose fathers were employed in professions and management occupations, chose the same occupational area.

Over 81 per cent of the seniors, who had fathers in clerical and sales work, chose that occupational area. There were 62 fathers employed in agriculture. Career plans of the graduating sons of the men were: 43.54 per cent, 3.23 per cent, 6.45 per cent, 35.48 per cent and 11.29 per cent selected occupations in professions and management, clerical and sales, service, agriculture and semiskilled occupations, respectively.

Ninety per cent of the graduates whose fathers had a college education planned to enter professions and management occupations; whereas 20.00 per cent of the seniors with fathers having an eighth grade education or less chose professions and management.

There was a relationship between the fathers' education and the career plans of their graduating sons.

The number of older and younger brothers was not closely related to the career choices of male graduates.

The number of male seniors from all schools who selected professional and management careers was 105 out of 171 reporting, or 61.40 per cent.

The combined occupational choices of the male seniors from all the eight schools were: professions and management 61.40 per cent, clerical and sales 2.92 per cent, service occupations 12.28, agriculture 14.09, and semiskilled 9.35 per cent.

No graduate, male or female, selected a skilled or unskilled occupation

More than 80.64 per cent of the male seniors and 85 per cent of the female graduates reported they were acquainted with some one in their chosen occupation.

More than 82 per cent of the male and 72 per cent of the female graduates with grade point averages above 3.0 chose careers in professions and management. Over 13 per cent of the male graduates with grade point average of 3.0 and above chose agricultural careers.

MILLER, DIRK W.

Each degree of influence was given a numerical value. The product of these values and the frequency each degree of influence was reported, gave a relative value for each factor. These relative values could be interpreted and indicating the influence of each factor.

Parents with a relative value of 1.05 was the most important factor influencing the occupational choices of the seniors studied.

Work experience and friends had a relative value of .62. Work experience might be considered slightly more important since the degree of very much was reported 46 times compared to 39 times for friends' influence.

The influence of the guidance director had a relative value of .47 and was considered fourth in importance. Teachers were in fifth position of influence with a .26 value, followed by relatives and books with .22 and .20 values, respectively.

MILLER, JIMMY W.
Influence of High School Vocational Agriculture on Swine Production Practices Followed by Graduates. Thesis, M.S., 1954 Iowa State College. 92 p. Library, Iowa State College, Ames.

Purpose -- To determine the extent to which high school graduates during the 1941-1952 period who had completed at least three years of vocational agriculture, and high school graduates who had not had any opportunity to enroll in vocational agriculture, are following improved practices in their swine enterprises.

Method -- The questionnaire was prepared by four graduate students. The practices included in this study were those believed to be most important in profitable swine production. Annual state reports were used to obtain a list of all schools within a radius of approximately 75 miles from Ames, Iowa which offered vocational agriculture during the 1938-1952 period. These schools were paired with schools which did not offer vocational agriculture. Lists were obtained of the high school graduates during the 1941-1952 period who were farming at the time of this study. Veterans enrolled in institutional on-farm training programs were eliminated from this study. Twelve graduates were selected at random from each school and were grouped in the following manner: three veterans were selected who were graduated during the 1941-1945 period, three veterans who were graduated during the 1946-1952 period, three nonveterans who were graduated during the 1941-1945 period, and three nonveterans who were graduated during the 1946-1952 period. Each of the 240 graduates was interviewed personally.

Findings and Interpretations -- The vocational agriculture graduates had the higher mean scores for 18 of the 23 swine practices. Significant differences were found in the use being made of six practices. The vocational agriculture graduates were using these practices to a greater extent than were the nonvocational agriculture graduates. The practices were: keep written breeding dates for each sow; use market weights to arrive at average daily gains; separate weaning and vaccination by at least ten days; vaccinate pigs for cholera; raise pigs on clean legume pasture; and follow a program of breeding which will produce a meat-type hog.

MITSCHELE, WALTER
Competencies in Animal Science Needed by
Vocational Agriculture Instructors. Thesis,
M.S., 1965, Iowa State University of Science
and Technology. 100 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose — To determine competencies in animal science needed by vocational agriculture instructors, the degree of competence possessed by the instructors and place of acquiring competencies.

Method — A list of competencies was developed by a panel of outstanding vocational agriculture instructors and revised by a panel of College of Agriculture specialists. The revised list was mailed in questionnaire form to 225 experienced Iowa vocational agriculture instructors. Instructors indicated the degree each of the 25 competencies were needed and possessed on a 10 point scale and whether the competence was acquired on farm, in vocational agriculture, in college or on the job. Instructors were stratified into groups A, B, C or D according to teaching competency.

Findings — The ability to balance and plan rations and the principles of nutrition were evaluated as the two most needed competencies by group A. The same competencies but in reverse order, were also rated at the top on the basis of need by group D. The mean needed scores ranged from 7.72 to 7.69 for group A and 7.45 to 7.42 for group D on a scale with a top value of 9. Rated lowest on the scale was the ability to shear sheep, with a mean needed score of 3.51 by group A and 3.70 by group D.

In 21 of the 25 competencies listed, the instructors in group A indicated a need for more competence than they possessed. The largest indicated need differences were for use of records in livestock selection and State Health Regulations and sanitation practices with mean score differences of 1.08 and 1.00 respectively.

The Spearman rank order coefficient of correlation was used to analyze the mean competency needed scores. A correlation of .91042 was obtained for group A and group D indicating a strong tendency to rate the animal science competencies needed similarly.

Correlations were run to determine the extent to which changes in the ratings of one needed competency studied were accompanied by equal changes in another needed competency. Of the 325 combinations possible, 183 were significantly correlated at the one percent level, 61 at the five percent level, and 81 were not significantly correlated for group A.

The instructors indicated that 15.3 percent of the competencies had been acquired on the farm, 10.3 percent in vocational agriculture, 46.1 percent in college and 28.3 percent on the job.

Competencies involving understanding were more often learned in college, while abilities were usually more often learned on the farm or on the job.

The findings of this study indicated, that while some competencies were given much higher needed scores than others, all 25 of the animal science competencies listed were needed to some extent by vocational agriculture instructors.

NEWTON, MELVIN F.
Factors Influencing the Occupational
Choices of Farm-Reared Male Graduates of
Newton High School. Thesis, M. S., 1961,
Iowa State University of Science and
Technology. 89 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose -- To determine the factors influencing occupational choices of farm-reared male graduates of the Newton, Iowa, High School.

Method -- Graduates for the years 1940 through 1955 whose school record listed their fathers' occupations as farming were used in the study. Information was obtained from questionnaires returned by the graduates and from the school records.

Findings and Interpretations -- Information was obtained on 194 graduates. According to this information the graduates were employed as follows: (a) farming, 38.04 percent; (b) farm-related occupations other than farming, 17.39 percent; and (c) occupations not related to farming, 44.57 percent.

Those who had enrolled in high school vocational agriculture included 74.23 percent of the graduates. Of these, 74.31 percent completed more than five semesters of study.

Vocational agriculture was found to have a significant effect on the graduates occupational choices. Graduates with more than five semesters of vocational agriculture training chose farming and farm-related occupations more often than would be expected. Of those who had completed five or more semesters of vocational agriculture, 48 percent were in farming.

In studying home-related characteristics, five observations were made: (a) graduates from larger farms tended to enter agricultural and kindred occupations to a greater extent than did graduates from smaller farms; (b) graduates whose parents were farm owners tended to enter professional and managerial occupations to a greater extent than did graduates whose parents were renters; (c) graduates whose fathers ranged in age from 45 to 64 years of age tended to enter farming to a greater extent than did those whose fathers were either younger or older; (d) graduates with the most siblings tended to enter farming to a lesser extent than did graduates with fewer siblings; and (e) graduates reporting mothers with higher educational achievement tended to enter occupations other than farming.

When high school characteristics were studied, the following results were noted: (a) higher ability graduates, as measured by class rank and I. Q., tended to choose occupations not related to farming; (b) graduates supervising workers in their present occupations tended to have participated to a greater extent in high school activities; (c) graduates who had not enrolled in vocational agriculture in high school tended to rank higher in their graduating classes and to report more college attendance than did those who had enrolled; (d) graduates reporting vocational agriculture

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training as valuable in their present occupations tended to be thsoe who had completed five or more semesters of vocational agriculture; and (e) graduates who reported a knowledge of farming as essential in their present jobs tended to value their vocational agriculture training to the highest degrees.

Marriage to local girls and to farm-reared girls had highly significant relationships to the graduates' choices of location and choices of farming occupations, respectively.

Of the 194 reporting, 38.66 percent reported college attendance, and 23.20 percent reported the completion of four years or more. Those with two years or more of college education tended to choose occupations not related to farming.

Military service was reported by 65.46 percent of the respondents but was found to have no significant relationship to the graduates choices of farm-related or nonfarm-related occupations.

NIELSEN, DUANE M.
Relationship of High School Vocational
Agriculture and Size of Home Farm to
Establishment of Graduates in Farming.
Dissertation, Ph.D., 1958, Iowa State
College. 129 p. Library, Iowa State
College, Ames.

Purpose -- To determine the relationship of high school vocational agriculture and size of home farm to the establishment of graduates in farming.

Method -- This study of establishment in farming included 120 male graduates from 20 pairs of high schools located in the north central cash grain and the eastern livestock areas of Iowa. The 45 high schools in the two areas, which offered vocational agriculture during 11 of the 12 years 1943 through 1954, were paired with 45 high schools that did not offer vocational agriculture during the same period. The 20 pairs of schools were randomly drawn from the 45 pairings.

All of the 120 men were living on farms at the time they were graduated from high school, and all were farm operators in 1955. Sixty of the 120 were vocational agriculture graduates, and 60 were graduates of schools which did not offer vocational agriculture. Sixty of the men were sons of landowners and 60 were sons of nonlandowners. Sixty were graduated during the 1943-48 period and 60 during the 1949-54 period. Forty of the graduates were living on home farms of 160 acres or less when graduated from high school, 40 on home farms of 161-319 acres in size, and 40 on home farms of 320 acres or more. Data for the study were obtained by personal on-farm interviews.

Findings -- The graduates who had three or more years of high school vocational agriculture had larger mean scores than graduates who had not received such training, for 28 of 32 measures of establishment in farming. An analysis of variance, multiple classification, was made for each of the nine more comprehensive measures of establishment. Significant differences were found, favoring the vocational agriculture graduates, for crop, livestock, and total gross products for the year 1955, and for production and management practices used on the farms operated by the graduates, 1943 throug 1955.

Mean scores for 16 of the 32 measures of establishment increased with increases in the size of the home farms of the 120 graduates included in the sample. Four of the nine analyses of variance, multiple classification, yielded significant F values favoring the graduates from larger home farms. The four measures, with significant differences, were total acres farmed, crop acres farmed, and crop and total gross products from the farms of the graduates, in 1955.

Subject to the conditions and limitations of this study, two conclusion appear warranted. First, farm operators who completed three or more years of high school vocational agriculture had higher crop, livestock, and total gross products from their farms, and had more extensively used improved production and management practices on their farms than high school graduates who did not receive such training. Second, farm operators who lived on larger home farms when graduated from high school operated larger farms with more crop acres, and had higher crop and total gross products from their farms, than high school graduates who lived on smaller home farms when graduated.

O'BRIEN, MICHAEL
Evaluation By Graduates Of The Program Of
Agricultural Engineering At The Iowa State
College. Dissertation, Ph.D., 1951, Iowa
State College. 118 p. Library, Iowa
State College, Ames.

Purpose -- It is the purpose of this study to secure from 1910-1950 graduates an evaluation of selected courses in the agricultural engineering curriculum at the Iowa State College. It is a further purpose of this study to show the employment distribution of graduates of the agricultural engineering curriculum at the Iowa State College.

Method -- Questionnaires were sent to all of the graduates to obtain the following information: (1) employment status, (2) undergraduate and graduate major, (3) degrees received, (4) ownership of farm or business, and (5) opinions concerning the emphasis placed on selected undergraduate courses while the graduates were in school.

Findings -- The desired emphasis upon six selected areas of agricultural engineering was evaluated by graduates. These areas were: wood construction, agricultural machines, agricultural engineering application, farm electrification, seminar (junior), and seminar (senior). Emphasis placed upon these courses, in general, was rated as about right by three out of every four graduates.

Individuals holding graduate degrees in agricultural engineering had a tendancy to report emphasis prevailing at the time of graduation to be about right more often than did others included in this study.

The analysis of opinions of graduates shows that during the 41 year period the constant revision of the curriculum has tended to meet with the approval of the graduates in agricultural engineering.

OLVER, ELWOOD FORREST
Evaluation of Farm Educational Programs
of Electric Power Suppliers in the United
States. Dissertation, Ph.D., 1957, Iowa
State College. 134 p. Library, Iowa
State College, Ames.

Purpose -- The purpose of this study was to summarize, compare and evaluate the practices in prevailing farm programs of all electric power suppliers throughout the country and to point out worthwhile implications to the power industry.

Method -- A concise, compact, well-defined and easily answered four-page questionnaire was developed and sent to 1612 power suppliers. The 653 power suppliers that returned the questionnaire served 4,147,316 farms or 90.4% of the total electrified farms in the United States.

Findings -- About 44% of the 4,147,316 farms were served by cooperatives, 3% by municipals, and 53% by utilities.

Giving technical advice to farm consumers was the most frequently employed practice in farm programs, while the second most popular practice was working with high school teachers. There was a positive relation between the use of these practices and the quality of these programs.

The standards by which the power suppliers judged the success of their farm educational programs in the order of their occurrence were: revenue increase, consumer goodwill, fulfillment of organization's responsibility to farm consumers, appliance surveys, sales increase, and farm visits.

The techniques most widây used by suppliers to increase consumption in the order of occurrence were: dealer cooperation, use of an incentive rate, sending of literature, sales promotions, free electricity for certain purchases, appliance trials and others not so commonly employed.

Visual aids were employed by various farm programs in the following order of frequency: camera, movie and slide projectors, commercial films, flannel board, and current farm literature. Other farm program aids listed in the order of their preference were: use of a vehicle, electric meters, exhibit funds, tool kit, and demonstration equipment.

Most suppliers having 500 farm consumers had one or more advisors to work with farmers and farm organizations. Over 50% of these suppliers had their advisors making yearly visits in the following order of preference to: county extension personnel, electric dealers vocational agriculture teachers, newspaper editors, and key farmers. The major activities of the advisors were advising farmers, settling farmer complaints, and promoting dealer sales respectively.

During the five year period prior to this study, from 30% to 65% of all suppliers had sent one or more advisors to training schools in the following order of occurrence: adequate wiring, water systems, lighting, motors, OLVER, ELWOOD FORREST

irrigation, house heating, hay drying, ranges, laundry equipment, grain drying, and water heating. The training of the advisors was done by the power suppliers, state college or university, and manufacturer personnel.

At the time of this study, power suppliers in the United States were placing great emphasis upon a farm educational program.

PEERY, DUDLEY LEWIS
Analysis of Farm Management Teaching Recommendations for Vocational Agriculture Classes
Made by Farm Management Workers and Successful Farmers. Thesis, M.S., 1951, Iowa State
College. 83 p. Library, Iowa State College,
Ames.

Purposes -- To determine the relative emphasis to be given problem areas in farm management as recommended by successful farmers and farm management extension workers; and to review the profit-maximizing principles of economics which should contribute to the training for proficiency in farming.

Method -- A suggested list of farm management areas was prepared and sent to 10 successful farmers and 10 farm management extension workers in Iowa. These evaluators were instructed to delete or add any additional farm management areas that would fulfill the purpose of recommending the problem areas in farm management for vocational agriculture classes. Each evaluator was allowed 170 teaching days to allocate among the farm management problem areas recommended by each individual. The allocation of days for the teaching of each specific area indicated the relative emphasis by the evaluator.

Findings and Interpretations -- There were 13 problem areas of farm management recommended by the successful farmers and farm management extension workers. These include (1) farming as an occupation, (2) farm-leasing arrangements, (3) buying a farm, (4) using farm credit, (5) the organization and management of the cropping system, (6) the organization and management of the livestock program, (7) economics of farm power and machinery utilization, (8) utilization of farm labor, (9) farm buildings and farmstead arrangements, (10) farm accounting and farm business analysis, (11) adjusting production and marketing to changing prices, (12) adjusting to the risk involved in farming, and (13) farm budgeting and planning. Each group considered the two most important areas to be the organization and management of the cropping system and the organization and management of the livestock program. A high degree of similarity was exhibited in the recommendations submitted by the two groups in respect to the emphasis which should be given to a study of farming as an occupation, farm-leasing arrangements, using farm credit, the economics of farm power and machiners, farm accounting and farm business analysis, adjusting production and marketing to changing prices, and adjusting to the risk involved in farming. The degree of similarity is based upon the close emphasis shown among the group mean values of each farm-management area.

PERDUE, CHARLES E.
Implications for Adult Education in
Agriculture from Responses of Partici-
pants in the Veterans Form Training
Program in the Central Region; VI.
Course Content of Present Program.
Thesis, M.S., 1952, Iowa State College.
112 p. Library, Iowa State College, Ames.

Purpose -- To determine the amount of emphasis given to various areas of subject matter in the institutional on-farm training program in 11 States of the Central region.

Method -- A printed schedule was sent to every veteran in each of 50 classes selected by random sample in each of the 11 States which participated in this study. A table of random numbers was used to select 300 completed schedules from each of the States. Information on the schedules was coded and placed on IBM cards. The participating States were Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, and Wisconsin. The question used in this study pertained to the extent of training received by the veterans in the areas of study common to the institutional on-farm training program. Comparisons were made of the responses by States and by instructor rating regarding the training received in the 16 units. The statistical treatment consisted of computing means, percentages, and chi-square.

Findings and Interpretation -- Statistical treatment revealed highly significant differences among the States in regard to the amount of training received in each of the 16 units of study. Values computed indicated that a relationship existed between the rating of instructor and the training received in 4 of the 16 units.

Instructors who were rated above average reported less time spent on farm skills, livestock production practices, and food preservation and storage than did instructors who were rated average or below. More time was spent in farming programs by above-average instructors. All units were ranked by the participating veterans according to the amount of training received in each unit. The ranking was as follows: (1) livestock production practices, (2) farm and home accounts, (3) crop production practices, (4) farm planning and management, (5) soil conservation, (6) marketing farm products, (7) farm skills, (8) farming programs, (9) farm health and safety, (10) farm mechanics, (11) community and cooperative activities, (12) food preservation and storage, (13) leadership, (14) fruit and vegetable production practices, (15) family relationships, and (16) recreational activities.

POWELL, THOMAS RAYMOND

Factors Related to Employment Opportunities
in Retail Fertilizer Distribution in Iowa.
Thesis, M.S., 1965, Iowa State University
of Science and Technology. 86 p. Library, Iowa
Iowa State University of Science and
Technology, Ames.

Purpose -- The purpose of this study was to determine the employment opportunities in retail fertilizer distribution in Iowa in total, by job category, and by economic area. Managership background was also analyzed. This information would be provided to assist administrators of agricultural education in planning future programs where employment opportunities exist.

Method -- Twenty-five Iowa counties were selected by drawing at random from each of the six economic areas in Iowa with the number of selected counties weighted by the number of counties in each economic area. County extension directors in the selected counties compiled a list of 383 retail fertilizer distributors in the selected counties. Forty-four of these firms indicated they did not retail fertilizer. Usable replies were received from 309 (91.3 percent) of the remaining 339 retail fertilizer distributors in the 25 selected counties, when surveyed with a mailed questionnaire.

Findings -- There were 6137 full-time employees in firms retailing fertilizer in Iowa in 1959. There were 7286 in 1964 and these firms anticipated employing 9632 full-time male employees in 1968. The increase of 2346 employees from 1964-1968 was twice the 1149 from 1959-1964.

Based on the needs for new full-time male employees, employee turnover, and replacement needs for men retiring, 3939 job opportunities exist in firms retailing fertilizer in Iowa from 1964 to 1968 or about 985 job opportunities per year averaging almost 10 job opportunities per county per year.

A need for 654 fertilizer salesmen from 1964 to 1968 was shown with opportunity for 905 other unspecified employees, 562 service men, 328 clerical workers, 261 feed salesmen, 229 assistant managers, 177 heads of fertilizer departments, 151 heads of feed departments, 157 feed mill men, 105 elevator men, and 115 managers from 1964 to 1968.

All job categories anticipated job opportunities from 1964 to 1968 and all except manager, assistant manager, elevator man, and feed mill man anticipated a greater opportunity from 1964 to 1968 than had occurred from 1959-1964.

An anticipated opportunity for 32.4 percent more full-time male employees in 1968 than were employed in 1964 in retail fertilizer distribution in Iowa was found. Greatest opportunity exists in sales, service, and unspecified job category workers.

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College training may be used to prepare the 344 anticipated needed managers and assistant managers from 1964 to 1968, whereas area post high school centers or special technical training courses might be used in updating present employees and training the 1505 anticipated new salesmen and department managers from 1964 to 1968. Vocational agriculture programs may serve to prepare the 2090 future needed employees for service, clerical, and unspecified job categories. It also may contribute by preparing high school students for post high school training (technical school or college) which would lead to employment in management or sales occupations.

RAINES, ROLLA GLENN
Preparation of Teachers for Farm Management
Instruction in All-Day Classes in Vocational
Agriculture. Thesis, M.S., 1951, Iowa State
College. 56 p. Library, Iowa State College,
Ames.

Purpose — To secure an evaluation by vocational agriculture instructors of their preparation for farm management instruction in all-day classes in vocational agriculture.

Method — A questionnaire and letter of explanation were mailed to 86 vocational agricultural instructors who had been graduated from the Iowa State College between June 1946 and July 1949, inclusive, and who were teaching vocational agriculture in Iowa high schools during the school year 1949-50.

Findings and Interpretations — Thirteen subject-matter areas in farm management were evaluated in terms of their contribution to training of vocational agriculture pupils for proficiency in farming. Seventy-four vocational agriculture instructors rated the areas of organization and management of the cropping system, organization and management of the livestock program, and farm accounting and business analysis as the three most important area. Farm budgeting and planning, farm leasing arrangements, using farm credit, and farming as an occupation were the other subject-matter areas which were given high ratings. Utilization of farm labor and farm building and farmstead arrangements were rated lowest.

Teachers tended to rate their preparation as only fair in practically all areas of farm management except the organization and management of the crop and livestock programs in which areas they reported that their preparation was good.

The percentage of the total number of teaching days devoted by instructors of vocational agriculture to the area organization and management of the cropping system was similar to that recommended by successful farmers and farm-management extension workers. However, the percentages of the total days devoted to the area, organization and management of the livestock program, and to the area, farm accounting and farm business analysis, were somewhat higher than recommended by the two groups.

REINEBACH, LOYAL MARION
Prediction of Permanency in Teaching for
College students qualifying To Teach Vocational Agriculture. Thesis, M.S., 1951,
Iowa State College. 41 p. Library, Iowa
State College, Ames.

Purpose -- To determine whether a method for predicting permanency in teaching vocational agriculture could be developed from information pertaining to farm experience, college extracurricular activities, scholastic aptitude, and academic achievement of college students.

Method -- One hundred fifty-one qualifiers from the period 1938-47 were studied. Information was obtained from two sources: (1) Questionnaires previously administered by Everett L. Bell and (2) information recorded in the Registrar's Office, Iowa State College. Eight numerical variables selected from these data were farm experience, activity rating, ACE decile rank, agricultural engineering course average, 4-H experience, professional course average, high-school average, and productive agricultural course average.

Two criteria were chosen for prediction; in the first situation those with at least 2½ years' experience in agricultural teaching, extension, or soil conservation were included in the survival group; in the second situation only those with at least 2½ years' experience teaching vocational agriculture or veterans were included in the survival group.

Statistical techniques used were biserial correlation and discriminant function.

Findings and Interpretations -- Under the first criterion the group divided with 109 survival and 42 attrition. Under the second criterion there were 87 in the survival group and 64 in the attrition group.

None of the variables yielded significant biserial correlations with either criterion. Farm experience approached the 10 percent level of significance under the first criterion, the correlation being positive.

Farm experience, activity rating, ACE decile rank, and agricultural engineering course average were used as prediction variables for the first criterion. High-school average and agricultural engineering course average were used as prediction variables for the second criterion.

Multiple biserial correlations were not significantly different from zero for either of the discriminant function equations. The attempt to develop a satisfactory formula from the variables used for predicting permanency in teaching for college students qualifying to teach vocational agriculture was unsuccessful.

RHEA, MARK B.
Present Status and Opinions of Graduates
Granted Bachelor of Science Degrees Since
1932 in Agriculture Curricula at Iowa
State College. Thesis, Ph.D., 1953, Iowa
State College. 126 p. Library, Iowa
State College, Ames.

Purpose — To evaluate the Iowa State College curricula in 12 departments within the division of agriculture; to gain a knowledge of the graduate's location and occupational placement; to provide a basis for giving more adequate educational and vocational guidance to present and future students; and to provide a factual basis for making improvements in the present curricula.

Method — A questionnaire was developed and mailed to graduates who had obtained baccalaureate degrees in the division of agriculture from Iowa State College from 1931-32 to 1951-52. A total of 4,199 questionnaires were deliverable and 3,593, or 86 percent, usable returns were received. Returned questionnaires were coded and the information was placed on International Business Machine cards. Grade point average and year of graduation of each graduate was secured from the registrar's office.

Within the 21-year period an attempt was made for complete coverage. The graduates who returned questionnaires cannot be considered a sample from any known or hypothetical population except in rare instances. Therefore, the use of statistical inference either in estimation or in testing hypotheses, for all practical purposes, is nonexistent in this study.

Findings and Interpretations — Of the 3,593 respondents, approximately 1 in every 3, or 1,165 persons, entered the division of agriculture after previous college work elsewhere. Approximately 1 in every 5 graduates transferred to an agricultural curriculum from some other divisions at Iowa State College.

Farm-reared boys constituted 62 percent of the graduates, with 1 in every 4 returning to the farm directly after graduation. The proportion of farm-reared graduates varied from a low of 24 percent in forestry to a high of 86 percent in agricultural education.

There were 392 graduates who later received one or more earned graduate degrees, usually the master of science or doctor of philosophy degree. Of this number, 71 individuals had been granted the doctor of philosophy degree.

At the time of this study, graduates listed their present occupation as: Commercial agricultural and nonagricultural enterprises, 36 percent; farming, 20 percent; education, not including extension service, 13 percent; government services, 13 percent; extension service, 5 percent; and other occupations, 13 percent.

Of the 3,593 graduates, 483 individuals returned to the farm directly upon graduation, whereas 702 graduates were farming in 1952. This migration tendency may have resulted from inadequate capital for immediate entrance into farming. A similar shift was noted among graduates who were engaged in small business. On the other hand, migration from initial occupations as extension, Government service, and education to later occupations was observed.

RHEA, MARK B.

Of the 3,593 graduates who returned questionnaires, 3,115 individuals furnished income information. The total income for the 3,115 graduates was $16,413,000 for 1952 with a mean of $5,269 and a median of $4,586.

Graduates with masters' degrees received $400 greater annual income than those with such degrees. Graduates holding the doctorate received an additional $800 annual income.

Among 13 occupations beginning income, based upon 1952 standards, was highest ($4,750) for graduates engaged in small-business enterprises and lowest ($3,297) for those engaged in research work. Twenty years after graduation, the highest income ($9,558) can be expected in industrial management and the lowest ($4,781) in teaching vocational agriculture. However, the median annual income (1950-52) of all respondents who had graduated from agricultural education during the 21-year period was $4,550, as compared with the median income (1950-52) for all persons who had graduated from the 12 departments included in the study during the same 21-year period was $4,586.

Responses indicated that the graduates in agriculture at Iowa State College had received the education needed for leadership in the agricultural industry.

RHODES, CLARENCE L.
Implications for Adult Education from
Responses of Participants in the Veterans'
Farm Training Program in the Central Region:
IV. Needs. Thesis, M.S., 1952, Iowa State
College. 117 p. Library, Iowa State College, Ames.

Purpose -- To determine the opinions of the veterans concerning the needs of farm groups of various ages and training for instruction in farming.

Method -- A schedule was used to obtain information from veterans on-farm training in 11 States of the Central region. Fifty classes were selected to make up the sample in each State. A sample of 300 completed schedules from each State was used for the final tabulation. The tabulation of the data used in this study was made on the basis of individual States, ratings of instructors, and length of time the veterans had been in training. Statistical treatment consisted of percentages, means, and chi-square values.

Findings and Interpretations -- Even though more than 70 percent of the veterans sampled in each State were of adult farmer age they indicated that young farmers would benefit most from farming instruction. Younger adult farmers would benefit more than farmers 36 years and older. Farm women would benefit more than part-time farmers and rural nonfarmers would benefit the least from instruction in farming. This finding may imply that young farmer classes should be given more emphasis in agricultural eductation programs and that training should be provided for farm women. Farmers who have completed vocational agriculture in high school need further training the least. Some type of farm training program should be provided to meet the needs of the veterans after they have completed their present program. Since thousands of veterans have participated in the program, the problem of providing training for these men is a challenge to leaders in agricultural education. The longer the veterans had been in the training program, the greater the need seen for further training of farm groups of various ages and training.

ROBINSON, NORMAN LYLE
Competencies in Farm Machinery Maintenance
Needed by Farmers. Thesis, M.S., 1964, Iowa
State University of Science and Technology.
88 p. Library, Iowa State University of
Science and Technology, Ames.

Purpose -- To determine the competencies in farm machinery maintenance, repair and adjustment needed by present and prospective farmers.

Method -- A group of key farmers, those classified as outstanding in the use of farm machinery, identified the necessary competencies needed by farmers in farm machinery maintenance, repair and adjustment of 12 farm machines. A questionnaire developed from this list was submitted to 300 farmers who were graduated from Iowa high schools from 1950-1954, and to 300 farmers who were very proficient in the use of farm machinery. For brevity, competencies pertaining to only four of the original 12 machines (tractors, plows, corn planters and mowers) were included in the questionnaire. Farmers evaluated (1) the degree each competency was needed in order to properly maintain, repair and adjust farm machines, and (2) the degree to which each competency was possessed. The first 200 usable questionnaires returned by each group made up the final sample (400). Responses indicating degree of competency needed and possessed were analyzed using mean scores.

Findings -- Highest overall scores for competency needed for both groups were found for the competencies of tractor overhaul, adjusting tractor hydraulic systems, and adjusting and overhauling tractor carbuertors. There was a significant relationship observed between the degree of competency needed scores given by the outstanding farmer group and those given by the 1950-1954 graduates, as indicated by a Spearman rank order coefficient of correlation of .993.

The outstanding farmers indicated they possessed the most competence in replacing tractor oil filters, adjusting corn planting rates and providing tractor battery maintenance. The 1950-54 graduates reported the most competency possessed in replacing the tractor oil filter, cleaning the tractor air cleaner and providing battery maintenance.

A need for more competence than they possessed was indicated by the outstanding farmers for 16 of the 47 competencies, and for 14 of the 47 by the 1950-54 graduates. In the areas where the outstanding farmers felt a need for more competence than they possessed, competencies showing the greatest mean difference were: performing a complete tractor overhaul, and hammering out worn plow shares. Competencies with greatest mean differences for the 1950-54 graduates were: hammering out worn plow shares, and hand-surfacing plow shares.

The top ten machine competencies, as rated on the basis of competency needed by the outstanding farmers, were identified, and the highest competency mean, performing a complete tractor overhaul, was tested for significant differences between the other nine means by use of the t-tent. Computed t-values showed five combinations to be highly significant for the outstanding farmers and three for the 1950-54 graduates. Eight combinations were significant at the 5 percent level.

ROBINSON, TED RICHARD
Guilford-Zimmerman Temperament Profiles
of Iowa Vocational Agriculture Instructors,
Thesis, M.S., 1959, Iowa State University
of Science and Technology, 112 p., Library,
Iowa State University of Science and
Technology, Ames.

Purpose -- The purpose of the study was to investigate the ten traits of personality of Iowa vocational agriculture instructors as measured by the Guilford-Zimmerman Temperament Survey. Analyses were made of the differences observed (1) among the trait mean scores attained by the instructors and the mean scores recorded for the Guilford-Zimmerman Temperament Survey norm group, and (2) among the instructors classified in criterion groups according to their level of success.

Method -- The Guilford-Zimmerman Temperament Survey was administered to the instructors employed in Iowa vocational agriculture departments for 1958-1959 school year. A questionnaire was administered in conjunction with the temperament survey. The sample of instructors was divided into four criterion groups on the basis of an appraisal of the success of each instructor by the superintendent employing the instructor. The criterion groups included 265 of the 290 instructors employed for the 1958-1959 year. The superintendents appraised the success of the instructors on the basis of their (1) classroom effectiveness, (2) supervised farming programs, (3) young and/or adult farmer programs, (4) F.F.A. program, (5) professional attitude and development, (6) faculty and administration relationships, and (7) community relationships.

Findings and Interpretations -- Significant differences existed in the mean scores on the ten traits of personality attained by the total sample of instructors as compared to the norm group. The mean scores for the vocational agriculture instructors on each of the ten traits were higher than those recorded for the norm group. Analyses of the scores attained by the criterion groups revealed that non-significant differences existed in the ten traits of personality, except for the trait of General Activity. The analysis of the trait of General Activity produced an F value which was significant at the five percent level; however, a computation of the unbiased correlation ratio (ε) indicated that the strength of the relation was not sufficient to have practical application.

Chi-square analysis was used to test the significance of the differences between the actual and expected frequencies of the instructors within the criterion groups classified according to the data obtained from the questionnaire. The instructors were classified according to (1) supervisory district, (2) age, (3) marital status, (4) educational level, (5) educational institution from which they received their bachelors degree, (6) years of vocational agriculture teaching experience, (7) continuity of teaching career, and (8) number of teaching locations. The analyses revealed that significant differences existed among the actual and expected frequencies of the criterion groups classified according to the continuity of the instructors' teaching careers. Significant differences were also obtained when the criterion groups were classified according to the number of teaching locations.

ROBINSON, TED RICHARD

Data from this study did not indicate a definite temperament profile for the Iowa vocational agriculture instructors classified according to their level of success as determined by the superintendents employing the instructors. The study did indicate, however, that the Iowa vocational agriculture instructors attained significantly higher scores on the ten traits of personality than the Guilford-Zimmerman Temperament Survey norm group.

ROBINSON, TED RICHARD
Factors Related to the Occupations of Iowa Farm Male High School Graduates. Dissertation, Ph.D., 1964, Iowa State University of Science and Technology. 257 p. Library, Iowa State University of Science and Technology, Ames.

Purpose — To investigate the relationship of selected factors to the occupations of Iowa farm male high school graduates during the period of 1950 to 1954. Specific objectives were to determine (1) the relations between the graduates' occupations and the geographical location of their high schools, (2) the relations between the graduates' occupations and selected characteristics of their home environments, (3) the relations between the graduates' occupations and their educational backgrounds, and (4) some measures of the occupational status of the graduates.

Method — Selected educational, environmental, occupational and ability data were obtained from the records of 165 Iowa high schools and from questionnaire responses from 5722 former graduates (71.61 percent) of these high schools. The selected high schools had offered an approved three- or four-year vocational agriculture program to the members of at least one of the graduating classes from 1950 through and including 1954. Graduates included in the study were those whose fathers were farmers on the day of their graduation or who had been farming during most of the time that the graduates were in high school, and others who had completed six or more semesters of vocational agriculture.

Apparent biases resulting from differential response rates by the graduates classified according to their high school graduating class quartile rank and the size of their graduating classes were reduced by post-stratification of the population.

Findings — Grouping of the graduates according to agricultural classification of their occupations indicated that 29.63 percent were farmers and farm managers, 13.31 percent were engaged in off-farm agricultural occupations, 1.93 percent were farm laborers, and 55.13 percent were engaged in nonagricultural occupations.

Chi-square analyses revealed highly significant relationships between the agricultural classification of the graduate's occupation and: extent of migration; Iowa economic area of the high school; size of home farm; father's farming status; number of siblings; semesters of vocational agriculture; quartile rank in high school graduating class; year of graduation; post-high school education; and type of post-high school educational institution attended.

A higher percentage of graduates from high level of living index areas were farmers and farm managers, whereas more of the graduates from low index areas entered nonagricultural occupations.

Highly significant relationships existed between the census classification of the graduate's occupation and: education of father and mother; semesters of science; and semesters of mathematics.

ROBINSON, TED RICHARD

Occupational income, high school activity participation, and quartile rank tended to be positively correlated with the migration of the graduates. Likewise, Iowa economic area, level of living index of home, number of siblings with a college degree, semesters of science, semesters of mathematics, and semesters of vocational agriculture were related to the migration patterns of the graduates.

From analysis of variables pertaining to all graduates, positive correlations were derived between the occupational prestige scale value and: quartile rank (.335); semesters of mathematics (.228); occupational income (.285);and enrollment in a post-high school educational institution (.364). Income received by the graduates was positively correlated with: quartile rank (.128); extracurricular activity participation (.154); post-high school education (.125); and negatively correlated with recency of graduation (-.113).

SALMELA, MELVIN RAYMOND
Relation Between Home Characteristics of Farm-Reared Senior Boys and Their Occupational Choices. Thesis, M.S., 1958, Iowa State College, 73 p. Library, Iowa State College, Ames.

Purpose -- To determine the relationship between home characteristics of farm-reared high school senior boys and their occupational choices, and to determine if the occupational choices of senior boys with vocational agriculture training were different than those of senior boys with no vocational agriculture training.

Method -- Twenty schools which offered vocational agriculture were paired with 20 schools which did not offer vocational agriculture. The schools in the central cash grain and eastern livestock farming areas of Iowa were paired to have similar soil types, similar school enrollment, and a similar level of living index within the community in which each school was located.

All farm-reared senior boys completed a questionnaire and the sample was selected to include only those boys from the vocational agriculture schools with at least 3 years of vocational agriculture training. The criteria used to determine the relation between home characteristics and occupational choices were: (1) Categories on the basis of the first choice into either farming, professional occupations, and other occupations; (2) assign an occupational prestige score for the first choice from the North-Hatt Scale of occupational prestige; (3) assign an occupational prestige score for three choices from the North-Hatt Scale of occupational prestige and use the mean of the total score for each individual boy.

Findings -- No difference was found between the occupational choices of the 108 senior boys with vocational agriculture training and the 108 boys with no such training. No difference was found between the occupational choices of sons of landowners and sons of nonowners. Home characteristics found to be related to the occupational choices of the farm-reared senior boys were: size of family, education of the parents, amount of discussion of plans with parents, participation in 4-H Club and Boy Scout activities, and participation in church activities. Home characteristics not found to be related to the occupational choices of the senior boys were: age of the fathers of the boys, the use of information about occupations from persons related to the home and all sources of information, and the size of farm operated by the parents of the boys in the study.

SATORIUS, JACK HENRY
Needs and Interests of Out-of-school Young
Farmers in Garnavillo and Colesburg, Iowa
Communities, Thesis, M.S., 1959, Iowa State
University of Science and Technology, 93 p.,
Library, Iowa State University of Science and
Technology, Ames.

Purpose -- The purpose of this study was to determine the areas of instruction needed most by young farmers, to compare the interests, needs and farming statuses of these men in a community that had offered young farmer instruction for several years, with those in a community that had not offered such instruction, and to determine the number of young farmers in small communities available for young farmer classes.

Method -- The names of young farmers within the age group of 14 to 25 years were secured from various sources in the two communities. All of the known young farmers in the two communities who were not attending any public school (except adult farmer classes, young farmer classes, and farm training classes by veterans) and who lived on farms, were interviewed.

Findings and Interpretations -- Findings indicated no significant differences between the young farmers in the two communities in their ages, years of schooling completed, numbers enrolled in post-high school classes, participation in 4-H clubs, number of brothers, proportion of married to single persons, status in farming, vocational plans, interest in making more money from a certain crop or livestock enterprise, interest in managing the farm business more efficiently, interest in becoming established or better established in farming, interest in becoming established in some occupation other than farming, interest in farm mechanics activities, interest in more opportunities for social, recreational and hobby activities, or in the proportion of veterans to nonveterans.

There were apparent differences between the young farmers of the two communities in the number of young farmers that had participated in FFA chapter activities, that had attended young farmer classes, that were interested in attending young farmer classes and in the number of organizations to which they belonged. In each of these classifications the young farmers in the Garnavillo community, where young farmer classes had been held almost continuously for 7 years, had a significantly higher degree of participation or interest than did the young farmers in the Colesburg community, where young farmer classes had not been offered.

The married young farmers in both of the communities had reached a significantly higher status in farming than had the single young farmers. There were no significant differences between the married and single young farmers on any other basis of comparison.

The young farmers with two or more years of vocational agriculture in high school were significantly more interested in attending young farmer meetings than were young farmers with fewer than two years of vocational agriculture. There were no other significant differences between the young farmers with two or more years of vocational agriculture in high school and those with fewer than two years.

SATORIUS, JACK HENRY

More of the young farmers with a high status than the young farmers with a low status in farming had military experience, were interested in becoming better established in farming, had participated in out-of-school classes, and had fewer brothers. Young farmers with a low status in farming were more interested in becoming established in some occupation other than farming. The size of farm that the young farmer with a high status in farming was operating or helping to operate was smaller than the size of farm on which the young farmer with a low status in farming was living. All other comparisons based on the young farmer's status in farming failed to show any significant differences between the young farmers with a low status and the young farmers with a high status in farming.

Adequate numbers of young farmers with no military status were found in the two communities to justify the beginning or continuation of young farmer classes.

Findings in this study indicate that in planning a young farmer program the following areas of interest should be considered: (1) crop and livestock enterprises, (2) farm management problems, (3) better establishment in farming, (4) farm mechanics activities, and (5) social, recreational, and hobby activities. Although many young farmers were not interested in other occupations, some attention should be given to them in a young farmer class.

SAUPE, WILLIAM EDWARD
Farm Record Analyses as Source of Farm
Management Guides. Thesis M.S., 1961,
Iowa State University of Science and Tech-
nology. 81 p. Library, Iowa State Univer-
sity of Science and Technology, Ames, Iowa.

Purpose — The purpose of this study was to identify relationships found in the analyses of the farm records kept by the trainees in the Sheldon, Iowa, and Sibley, Iowa, veterans farm training classes during 1959 and 1960, which could be used as farm management guides.

Method — Data were collected by the investigator from information contained in the farm record books kept by each trainee. These data were treated statistically to obtain means for each of 24 variables, and to find the coefficients of correlation between each variable and each other variable. Variables included measures of: financial progress, sources of gross profits, scale of operations, labor and machinery performance, livestock production, crop production, and personal information concerning each operator.

Findings — Operator's net farm income and operator's labor and management return were nearly identical measures of annual financial achievement. Highly significant correlations occurred between operator's gross profits and operator's net farm income in both 1959 and 1960.

Operator's net farm income was correlated with several measures of volume of business, but with only a few measures of efficiency of business. Highly significant coefficients of correlation were observed for both years between operator's net farm income and the following: operator's gross profits; gross profits from crops; gross profits from livestock; and total value of capital managed. Crop acres and total acres were significantly correlated with operator's net farm income for 1959. The number of cattle fed and the productive man work units were significantly correlated with operator's net farm income for 1960.

There was a highly significant negative correlation between power and equipment operating expense per crop acre and operator's net farm income for 1959. Livestock returns per $100 feed fed and pigs weaned per litter were significantly correlated with operator's net farm income for 1959.

No significant correlations between years of school completed and operator's net farm income were observed. One explanation offered by the investigator was that the training in farming received in the veterans farm training program had tended to equalize the differences in income attributed to educational achievement.

SCHMIDT, GERALD J.
Relation of High School Vocational Agriculture and Science to Achievement in the College of Agriculture. Thesis, M.S. 1961, The Iowa State University of Science and Technology, 88 p. Library, Iowa State University of Science and Technology, Ames.

Purpose -- To determine the relationship between the number of semester credits of high school vocational agriculture and science completed by students, the academic achievement of students, and their relationship with some of the predictors commonly used in counseling students enrolled in the College of Agriculture.

Method -- An analysis was made of the records of 287 male students who were graduated from an Iowa High School in 1955 and matriculated into the College of Agriculture at the Iowa State University of Science and Technology in the fall of 1955. From the data gathered, sixteen variables were selected and correlated with each other. The variables included: semesters of high school science, vocational agriculture, general agriculture, and total agriculture. Quantative thinking score and Linguistic thinking score of the ACE and reading speed score, reading comprehension score, and English placement score; high school, first quarter college, and final college quality point averages; tendency to graduate from the College of Agriculture; tendency to enroll in the curricula of Agriculture Education, Animal Husbandry or Farm Operation.

Findings and Interpretations -- There was a highly significant correlation between first quarter quality point averages and (1) semesters of high school vocational agriculture, .20, (2) total agriculture, .19, (3) Q scores .37, (4) Linguistic thinking scores, .37, (4) reading speed scores, .27, (6) reading high school average was more highly correlated with first quarter college quality point averages than were any of the other variables.

There was no correlation between first quarter quality point averages and semesters of science of general agriculture taken in high school.

Final college quality point averages correlated most highly with high school quality point average (.71), and first quarter quality point average (.85) which indicated that quality point averages are closely associated.

Final college quality point averages were also found to be correlated positively at the one per cent level with (1) semesters of high school vocational agriculture, .18; (2) total semesters of high school agriculture, .15; (3) quantative thinking scores, .37; (4) linguistic thinking scores, .32; (5) reading speed scores, .21; (6) reading comprehension scores, .35 and (7) English placement scores, .37. The correlation of semesters of high school general agriculture with final college quality point averages yielded a coefficient of correlation of -.13, significant at the five per cent level. Semesters of high school science did not yield a significant correlation when compared with final quality point average.

SCHMIDT, GERALD J.

It appeared that high school quality point average was the best single predictor of achievement in the College of Agriculture when achievement was considered in terms of first quarter and final college quality point averages and the tendency to graduate from the College of Agriculture. It also appeared that high school vocational agriculture had more to do with a student's success in the College of Agriculture than did high school science courses.

SHIH, SAMUEL H. K.
Physical Hazards to Safe Living on 688 Iowa
Farms. Thesis, M.S., 1955, Iowa State College.
107 p. Library, Iowa State College, Ames.

Purpose — To determine the frequency of occurrence of hazardous physical conditions on 688 farms in 11 Iowa counties and to determine whether any relationship existed between the number of hazardous conditions in the various classifications.

Method — The data were collected by 4-H members who visited the farms. The schedule used as a basis for the inspection and reporting of hazards included 97 conditions which were grouped in the following nine classifications: home, sanitation and health, car, electricity, farm shop, fires, machinery, buildings and farmyard, and animals.

Findings and Interpretations — Of 61,253 physical conditions reported on the 688 farms, a total of 16,698, or 27.26 percent were reported as being hazardous. The classification sanitation and health ranked highest and the classification fires ranked second highest in percentage of conditions reported as hazardous. The lowest percentage of conditions reported as hazardous was found in the car classification. There seemed to be no statistical evidence to justify the conclusion that the relationships among the nine classifications were significant. However, the degrees of association between some classifications such as electricity and the classification buildings and farmyard were much higher than those between other classifications such as the classification sanitation and health and the classification machinery.

SPRUILL, ALBERT W.
Public Relations Activities of North Carolina Negro County Extension Agents Through Radio Stations and Newspapers. Thesis, M.S., 1951, Iowa State College. 80 p.
Library, Iowa State College, Ames.

Purpose -- To ascertain the nature and extent of the public relations activities carried on by Negro county and home demonstration agents, through newspapers and radio stations, and to obtain an evaluation of these activities and suggestions for improvement of the same.

Method -- Information and opinions were obtained by means of schedules or blank forms distributed to all the Negro county agents, to all the editors of newspapers, and to the directors of radio stations located in the counties which have Negro county agents.

Findings and Interpretations -- Sixty-five percent of the extension agents personally prepared all of the news articles on their work. The majority prepared not more than one every 2 weeks. The mean number of news articles per agent during 1950 was 15.3.

The majority of the agents were at least fairly well acquainted with the newspaper staffs in their respective counties, and the majority of them invited newspaper personnel to attend extension-sponsored activities and events, at least occasionally. Only 48 percent, however, had ever held conferences with newspaper editors to ascertain newspaper policies toward extension publicity.

Only about one-third of the county agents arranged local radio programs. Over half of these programs were presented not more often than once each fortnight.

Forty-eight percent of the agents who did not have regular radio programs did release news stories to be broadcast. Only one-third of the agents were even slightly acquainted with the program director of the local radio station; and only 60 percent of these had conferred with the directors about radio programs on extension activities.

Newspaper editors had little fault to find with the quality of the majority of the news articles submitted by county agents. The faulty articles were too long, lacked timeliness, lacked human interest, or were ungrammatical. The news articles usually did undergo some revision before being printed, but the editors did not object to this, unless the revision needed was extensive. The newspaper editors also reported difficulty in obtaining news stories from extension agents.

While slightly over 50 percent of the editors did not use the pictures submitted by extension agents, two-thirds of them stated that they wanted agents to submit pictures with their news stories.

SPRUILL, ALBERT W.

Over one-third of the radio program directors were not acquainted with the extension agents in their respective counties, and over half of those who did claim acquaintance were not well acquainted. Only 13 stations broadcast local programs on extension activities, but the remainder of the stations reported their desire for such programs. They also expressed their willingness to broadcast news releases prepared by extension personnel.

The chief criticisms by radio directors of radio programs submitted by extension agents were as follows: (1) Too formal, (2) lacking in organization, (3) lacking in humor, and (4) lacking in variety.

Definite suggestions for the improvement of news articles and radio programs were made by editors and directors. Suggestions for the general improvement of public relations activities of the extension service and of newspapers and radio stations were also made by all parties concerned.

STEVENSON, PAUL NELSON
Influence of High School Vocational Agriculture on Farm Mechanics Practices Used by Students Previous to Enrolling at Iowa State College. Thesis, M.S. 1956, Iowa State College. 93 p. Library, Iowa State College, Ames.

Purpose -- The purpose of this study was to determine the influence of high school vocational agriculture on the extent to which selected farm mechanics jobs or skills had been performed by graduates, prior to enrolling in Iowa State College.

Method -- A farm mechanics schedule was developed which included information about 75 selected common jobs or skills in the five major areas of farm mechanics; farm shop, farm buildings and conveniences, farm power and machinery, farm electrification, and soil and water management. A list of 46 commonly used tools and equipment was also included. This schedule was administered to 371 students enrolled at Iowa State College in A.E. 254, an introductory farm mechanics course, during the academic year of 1955-1956.

Findings and Interpretations -- It was found that a similar number of vocational agriculture graduates and nonvocational agriculture graduates were sons of parents who were landowners. Likewise, equal numbers of the two groups were living on farms of 240 acres or less. Sixty-nine nonvocational agriculture graduates had shops on their home farms, whereas only 59 of the vocational agriculture graduates had shops.

More than twice the mean number of welding tools were used by vocational agriculture graduates as were used by nonvocational agriculture graduates. Sixty-two vocational agriculture graduates used six or more farm mechanics tools, as compared to 36 nonvocational agriculture graduates who used this number.

The members of the vocational agriculture groups did on an average 36 per cent of the possible 75 farm mechanics jobs that were listed, whereas the members of the nonvocational agriculture group completed only 26 per cent of the 75 possible jobs listed. Eighty-six per cent of the 79 vocational agriculture graduates whose parents owned or partly owned their farms completed 16 or more farm mechanics jobs. Of the 81 nonvocational agriculture graduates with parents of similar ownership status, 67 per cent completed 16 or more jobs.

The high school graduates who had spent two-fifths or more of their vocational agriculture class time in farm mechanics completed 28 per cent more welding jobs than was done by those who had spent one-fifth or less of their class time in shop work.

STEWART, WILLIAM WARREN
Needs and Interests of Out-of-School Young
Farmers in the Postville Community. Thesis,
M.S., 1956, Iowa State College. 68 p. Library,
Iowa State College, Ames.

Purpose -- One purpose of the study was to determine whether there were sufficient numbers of out-of-school boys and young men living on farms in two school service areas to consider offering classes for these young farmers. Another purpose was to determine whether the young farmers in these two communities feel a need for additional educational and social opportunities. An additional purpose of the study was to discover if there were noticeable differences in interests, status in farming, and educational needs of young farmers in two different but adjacent communities.

Method -- From various sources, a total of 122 young farmers was located. Of these, 77 lived in the vocational agriculture community, Postville; and 45 lived in the nonvocational agriculture community. All of the out-of-school young farmers who had been located were interviewed; and 119, or 97.5 per cent, gave the information requested on the schedule. Interviews were conducted by the vocational agriculture instructors serving these two communities with the assistance of a few pupils in the high school vocational agriculture classes. Only those young farmers who lived on farms, who were between the ages of 14 and 25 inclusive, and who were not enrolled in high school or college were included.

Findings and Interpretations -- Findings indicated no important differences between the young farmers in the two communities in the proportion of married and single persons, number of brothers, ages, the level of education, the status in farming, farming status of fathers during the young farmers' last year in school, and in occupational plans.

A comparison of the young farmers of the two communities with respect to their level of interests in attending meetings and their interest in having more opportunities for social, recreational, and hobby activities, revealed significant differences at the 5 per cent level. The interest of the young farmers living in the vocational community was higher in these activities than the interest of the young farmers living in the nonvocational community.

The number of years of enrollment in high school vocational agriculture had no significant effect on the amount of interest that these young farmers of both communities had in attending meetings dealing with farming problems.

Persons included in this study participated in an average of slightly more than one organization. Approximately one-third of the individuals indicated no participation in any organized group. As might have been expected, the young farmers who were married had a higher status in farming than the young farmers who were single.

Of the 119 young farmers interviewed, 79, or two-thirds, expressed either very much or much interest in attending some systematic type of meetings for their benefit. No significant relationship was found between the status in farming and the amount of interest that the young farmers displayed in attending meetings.

STRAUTMAN, JAMES J.
Needs and Interests of Out-of-School Young
Farmers in the Kuemper High School Area.
Thesis, M.S., 1958, Iowa State College,
78 p. Library, Iowa State College, Ames.

Purpose -- To determine whether there were sufficient numbers of out-of-school boys and young men living on farms in the Kuemper High School area to justify the offering of classes for young farmers. Another aim was to ascertain the needs and interests of these young farmers in educational, guidance, and social opportunities. An attempt was also made to determine in what subjects, or areas, more training was desired by the young farmers when they were of high school age.

Method -- A single-page questionnaire, designed to be self-administered, was developed and used in this study. A total of 149 names of out-of-school young farmers were obtained from high school vocational agriculture students, adult advisory council members, high school students, extension personnel, and the records of the 10 parishes which Kuemper High School serves. A total of 140 questionnaires were distributed by the high school students, the adult advisory council, and the vocational agriculture instructor. Ninety-eight usable questionnaires were returned by boys and young men, 14 to 28 years of age, inclusive, who were not attending any public or parochial school classes and who were living on farms in the area served by the school.

Findings -- This study indicated there were sufficient numbers of out-of-school young farmers in the Kuemper High School area to justify the offering of classes for young farmers. Only 15 of the 98 young farmers surveyed indicated that they had little or no interest in attending such meetings. Of the entire group, 40 expressed either "much" or "very much" interest in attending meetings, and 43 expressed "some" interest. There was a significant difference at the 1 percent level between adult or young-farmer membership and nonmembership in their interest in attending meetings.

Subject matter areas ranked in interest from highest to lowest by the young farmers were as follows: (1) Shop skills; (2) livestock feeding; (3) livestock management; (4) keeping and using farm records; (5) crop and soil management; (6) getting a better start in farming; (7) getting together with young men of own age to discuss common problems; (8) rental or partnership agreements; (9) getting started in occupation related to agriculture; and (10) getting started in some nonagricultural occupation.

Of the 61 responding to the question, "whether or not you attended high school, what subjects or areas do you now wish you would have had more training in when of high school age." some phase of technical agriculture was mentioned 65 times; chemistry, science or mathematics was mentioned 18 times and business and bookkeeping 15 times.

STUCHEL, HENRY IRVIN
Relation of High School Mathematics and
English to Achievement in the College of
Agriculture, Thesis, M.S., 1965, Iowa
State University of Science and Technology,
88 p., Library, Iowa State University, Ames.

Purpose -- The primary purpose of this study was to determine the relationships that exist between the number of high school semester credits a student had in mathematics and English and the achievement of the student in the College of Agriculture at Iowa State University. Secondary purposes of this study were to compare the relationships of commonly used predictors to the student's achievement in the College of Agriculture, and to determine the relationship of these predictors to the number of semesters of mathematics and English a student completed in high school. Another purpose was to determine the effect of the number of semesters of high school mathematics and English on curriculum selection by the enrolling students.

Method -- This investigation was concerned with male students who had been graduated from an Iowa public or private high school and matriculated in the College of Agriculture in the freshman class in the fall quarter of 1955 at Iowa State University. High school and college transcripts obtained from the Office of the Registrar of 2251 students were examined and 300 students were found to fit the necessary criteria. High school training for the purpose of this study included subjects taken in grades 9-12. Additional data for this study were gathered from the Iowa State University Testing Bureau. Complete data for 287 cases were included in the study.

Findings -- Semesters of high school mathematics were significantly related to achievement in the College of Agriculture. A relationship significant at the 5% level of confidence was found between semesters of high school mathematics and first quarter quality point averages and the tendancy to graduate from the College of Agriculture. There was a relationship at the 1% level of significance between final college quality point averages and semesters of high school mathematics. No significant correlation was found between semesters of high school English and achievement in the College of Agriculture.

The five common predictors, ACE-Q, ACE-L, reading speed, reading comprehension and English placement scores were found to be correlated at the 1% level of significance with all the college achievement variables except one. Reading speed scores were not correlated significantly with the tendancy to graduate from the College of Agriculture.

Semesters of high school mathematics were correlated at the 1% level of significance with Q scores of the ACE and at the 5% level of significance with high school quality point averages. Semesters of high school English were correlated at the 5% level of significance with L scores of the ACE.

The Q, L, reading speed, reading comprehension and English placement scores all had some value in predicting achievement in the College of Agriculture.

STUCHEL, HENRY IRVIN

The best early predictor of the tendancy to graduate was the first quarter quality point average. The best predictor of first quarter quality point average and second best predictor of the tendancy to graduate was the high school quality point average.

Semesters of high school mathematics were found to be significantly correlated with a negative relationship to the tendancy to enroll in the Agricultural Education curriculum. This was the only significant correlation concerning curriculum selections.

STUDT, DALE M.
Influence of High School Vocational Agriculture on Corn and Small Grain Production Practices Followed by Graduates. Thesis, M.S., 1954, Iowa State College. 95 p.
Library, Iowa State College, Ames.

Purpose -- To determine whether there is any difference between the corn and small grain production practices followed by high school graduates who had completed at least three years of vocational agriculture as compared to those followed by graduates of high schools not offering vocational agriculture.

Method -- Two hundred forty farmers in eight Central Iowa counties were personally interviewed and were asked the degree to which they used one of four studies being conducted cooperatively to determine the influence of high school vocational agriculture on practices followed and participation in organized groups by graduates. The other studies were concerned with swine management practices, soil management practices, and with the participation of graduates in organized groups. The practices followed by twelve graduates having had three or more years of vocational agriculture in each of 10 high schools were compared with the practices followed by twelve graduates from each of 10 schools who had no vocational agriculture. Farmers were asked whether they "Always," "Usually," "Frequently," "Seldom," or "Do Not Use" each of 20 selected practices. The responses were given numerical ratings and the scores for each practice by the two groups were compared by an analysis of variance.

Findings and Interpretations -- The vocational agriculture group had higher mean scores than the control group for 15 of the 20 practices studied. In the use of the practices by the two groups there were only two practices which showed statistically significant differences at the five per cent level. In favor of the vocational agriculture group was the practice of checking for corn borers each day by counting the number of egg masses per 100 plants. Five practices approached significance at the five per cent level in favor of the vocational agriculture group. These practices were: investigating the maturity date of seed corn before buying; fertilizing corn by side dressing during cultivation; investigating the yield of seed oats before buying; investigating the disease resistance of seed oats before buying; and testing home grown seed oats for germination before seeding. One practice, checking the corn planter before planting to see that it gives accurate rates of planting, showed a significant difference at the five per cent level in favor of the control group.

Although there appeared to be no statistically significant differences in the degree to which practices were being carried out by the graduates who had vocational agriculture training and those who had no training, inspection of the two groups indicated that there were differences in favor of the vocational agriculture group. Members of the latter group tended to operate a larger number of crop acres, to obtain more education above the high school level, and to attend adult and young farmer classes to a higher degree.

SUZUI, RICHARD S.
Needs for Instruction in Farm Mechanics
in Hawaii. Thesis, M.S., 1952, Iowa
State College. 160 p. Library, Iowa
State College, Ames.

Purpose -- To determine the need for instruction in farm mechanics in the Territory of Hawaii as indicated by the responses of the instructors and of veterans enrolled in the institutional-on-farm training program.

Method -- The questionnaire method was used in conducting this investigation. Two schedules were employed: Schedule I, to be filled out by the veterans' instructors; and schedule II, to be filled out by the veterans currently enrolled in the institutional-on-farm training program. One hundred thirty veterans were enrolled in the nine training centers located in the four major islands--Hawaii, Maui, Oahu, and Kauai. One hundred twenty-four usable questionnaires, together with the returns from the instructors, were summarized and tabulated.

Findings and Interpretations -- The ranking of the various farm-mechanics units in the order of their instructional needs was made by the use of the territorial mean scores for the veterans' responses concerning the need for instruction in these units. The three instructional units highest in the order of rank were as follows: (1) Making minor repairs of farm power equipment, (2) planning farm buildings other than dwellings, and (3) constructing farm buildings other than dwellings. Among the 10 high ranking farm mechanics units, the general areas of maintenance and repair of farm power and machinery received as much emphasis as the areas of construction and estimation of costs of farm buildings.

In many of the high-ranking farm-mechanics units, the mean scores for the responses of the veterans and for the instructors concerning the importance of these units in the program of vocational agriculture were in agreement. However, much variation was found in the corresponding mean scores regarding the extent to which the veterans had done these farm-mechanics jobs. Farm-power and maintenance units were ranked high in importance by the veterans as areas in which there was a need for instruction. Much of the work in these areas, however, had not been done by the veterans.

The jobs in forge work, and belts and power transmission were given low ratings by both the veterans and the instructors. The mean scores on the extent to which the veterans had done these jobs were also found to be low.

SWANSON, ROBERT MAGNI
Opportunities for Establishment of Young
Farmers in the Marengo, Iowa Community.
Thesis, M.S. 1961, Iowa State University
of Science and Technology 59 pages. Library
Iowa State University of Science and Technology. Ames, Iowa

Purpose -- To determine the opportunities for establishment of young farmers in Marengo, Iowa Community.

Method -- Information was obtained from 363 farm operators in the area served by the Iowa Valley Community School at Marengo, Iowa. This constituted all the farm operators in the area.

Findings and Interpretations -- Ninety-one farm operators had entered farming during the past ten years. Fifty-four of the operators had become established during the past five years. Forty-six operators were over 65 years of age. If they retire during the next ten years this would be an average of 4.6 farming opportunities during the next ten years.

Farm operators who owned all the land they operated numbered 115 or 31 percent of the total. Forty or 11 percent of the farmers were both owners and renters. Renters numbered 78 or 21 percent of the total. The number of operators with partnerships were 88 or 24 percent of the total. Thirty-two or nine percent were serving as hired hands. Ten farmers, three percent, were classified as having other farm status.

There was a relationship between the number of tillable acres operated and the education of the operator. The more formal education had by the operator, the larger the number of tillable acres farmed.

Of the 50 employed sons living at home 23 were farming. Seventy-five of the 142 sons away from home were farming.

Considering the age of the farm operators, general retirement age of farmers and the decreasing number of farms the actual need for farmer replacements during the next ten year period may be approximately 76 operators. It was estimated that 68 sons of operators may be looking for farming opportunities during the next ten year period.

THOMPSON, MARVIN D.
Construction and Validation of a Test of
Skills in Farm Mechanics for Vocational
Agriculture Pupils. Dissertation, Ph.D.,
1955, Iowa State College. 89 p. Library,
Iowa State College, Ames.

Purpose -- This investigation involved an attempt to develop sample test procedures of manipulative skills for vocational agriculture pupils in farm mechanics, to evaluate these procedures, and to revise the test instruments to a workable form for use by teachers of vocational agriculture.

Method -- Job sheets and evaluative instruments were developed. Jobs selected as suitable for use in the testing program were: (1) Making a framing square hanger, (2) making a funnel pattern, (3) turning an eye for an eyebolt, (4) cutting threads, (5) making a butt weld, and (6) replacing a ledger plate. The evaluative technique involved measurement using scales or gages to determine variations in dimensions and a subjective rating using a five-point scale descriptive of variations in quality. Usable job products were obtained from 918 pupils in 21 departments of vocational agriculture.

Findings and Interpretations -- A multiple coefficient of correlation was obtained for each of five jobs for which sufficient data were available. The correlations were between scores on the various factors involved in the instruments and the overall ratings. An analysis of co-variance for scores given in each of the aforementioned five jobs was computed. Controls were made on the evaluators of the job products and on the class levels of the pupils tested.

The test instruments were revised in order to obtain a form usable by the vocational agriculture instructor. Variables were dropped which made no contribution to the scoring devices, and weights were determined for each variable in order to obtain a simple scoring scheme. This investigation has described a procedure for evaluating shop projects involving manipulative skills. The study should suggest possible devices or techniques for evaluating other skills which are taught in farm mechanics or in other shop courses.

VANLOH, FREDERICK ALVIN
Competencies in Agriculture Needed by
Males Employed in Retail Fertilizer
Distribution. Thesis, M.S., 1964, Iowa
State University of Science and Tech-
nology. 110 p. Library, Iowa State
University of Science and Technology, Ames.

Purposes — To determine (1) the important agricultural competencies needed by males employed in retail fertilizer distribution, and (2) the degree of competency needed and possessed by employees in each competency.

Method — A panel of 12 specialists from independent, cooperative, and incorporated retail fertilizer firms in Iowa and of the Iowa State University of Science and Technology identified the important agricultural competencies needed by employees in the various occupational areas in the retail fertilizer industry. A questionnaire was developed around this list and submitted to the 120 Iowa firms offering application and/or spreading services to farmers in 1964 with instructions to indicate (1) the degree the competencies were needed in order to effectively perform the functions of their jobs, and (2) the degree the competencies were possessed by the employee. Usable data were obtained from 94 managers, 44 sales personnel and 43 service employees. Responses indicating degree of competency needed and possessed were analyzed using mean scores.

Findings — Of the 29 agricultural competencies listed by the panel, 14 were understandings and 15 were abilities. Thirteen of the competencies pertained to various phases of farming and 16 to dealership management and service. Highest overall scores were found for the understandings: amounts of fertilizer required for various levels of crop production; seed quality and plant population relative to fertilizer response; weed and insect problems and their control; and the abilities; to interpret a soil test report; identify fertilizer materials and evaluating formulas; make proper recommendations regarding fertilizer use and help individual customer keep a fertilization history on his farm; recognize good, new fertilizer practices and recommend their use; recognize plant food deficiency in growing crops; make recommendations in absence of a soil test report; and determine an individual's financial situation and management level.

Employer and employee scores for all competencies were higher for the degree of competence needed, than for the degree of competence possessed. Employee scores were higher than employer scores for both the degree competencies were needed and possessed.

Relationships between selected control variables and the 10 most needed competencies as rated by all employees were studied using analysis of correlation. From the correlation matrix including only manager, farm background was negatively correlated with degree competence was needed for all but one of the competency variables while being positively correlated with degree competence was possessed.

VANLOH, FREDERICK ALVIN

A correlation matrix using the same variables but including all employees was developed. Vocational agriculture training was more highly correlated with competencies needed and possessed than the other control variables used. Highest correlation coefficients were found to exist between vocational agriculture training and competence needed for the ability to make recommendations in absence of a soil test report (.325), competency possessed for the ability to recognize good, new fertilizer practices and recommend their use (.311), and competence possessed for understanding see quality and plant population relative to fertilizer response (.290).

VILLAVIZA, QUIRINO N.
An Improvement Program For Corn Production
in the Philippines. Field Study, M.V.Ed.,
1959, The Iowa State University of Science
and Technology. 75 p. Education Department,
The Iowa State University of Science and
Technology, Ames.

Purpose -- The main purpose of this study was to find ways and means of improving the status of corn production in the Philippines through adaptation of an improved program of development implemented in the United States. Another objective was to determine how much responsibility should be assumed by the Philippine government and to what extent should private sectors participate.

Method -- The development and status of corn production in the Philippines and in the United States were studied. The data used were gathered from recent published results of research in the Department of Agronomy, Iowa State University, from various publications of the United States Department of Agriculture, which relate to corn, and from information obtained from the Philippines by direct communication.

Findings -- The suggestions for improving corn production in the Philippines on a permanent basis may be summarized as follows:

1. Production and planting of better seeds and superior varieties.
2. Use of fertilizer to meet the requirements of the soil.
3. Adjustment of stand to soil fertility and moisture.
4. Efficient use of machinery wherever and whenever feasible.
5. Encourage farmers to follow good crop rotations and soil-building practices.
6. Adoption of effective and improved weed, insect pest and disease control measures.
7. Good timing of all production operations such as field preparation, cultivation and harvesting.
8. Good storage and effective marketing practices should be made available to the corn farmers.
9. Agricultural education should be taken to the farmers.

WALL, JAMES EUGENE
The need for training present and prospective
employees in grain marketing and farm supply
businesses. Thesis, M.S., 1954, Iowa State
College. 75 p. Library, Iowa State College,
Ames.

Purpose -- To determine whether a need existed for training persons already employed in grain marketing and farm supply businesses and persons who are interested in obtaining employment in this industry.

Method -- Printed schedules were mailed to 694 managers of farmer's co-operative elevators, line companies having branch elevators, and independently operated elevators in Iowa. Schedules obtained by mail totaled 366. After follow-up letters were sent, a random sample of approximately 25 per cent of those managers who did not respond to the mailed schedule were interviewed. By interview 58 schedules were obtained resulting in a total of 424, or 61.1 per cent.

Findings and Interpretations -- Managers indicated that the main services and/or sales items of most importance in their business operations were grain and/or milling, feed and/or feed mixing, fertilizer, seed, and building material and hardware. Personal information was secured concerning each manager and descriptive information was also secured concerning his establishment. Of the managers responding, 10.6 per cent had no high school education and 69.2 per cent had no college training. Seventy-five per cent of the managers had completed high school, 7.3 per cent had completed 4 years of college and another 1.4 per cent had completed 5 or more years of college. Areas in which the managers felt that they were most adequately trained were, in order of their importance, grain grading, grain buying, grain warehousing, feed merchandising, retail credit, accident and fire prevention, seed merchandising, salesmanship, personnel management, grain sanitation, livestock feeding and management, and government programs and regulations. The majority of the managers indicated a need for training prospective employees by recommending a 1 to 2-year college program carrying full college credit. Some managers recommended a short course about 6 weeks to 1 year in length and a lesser number recommended a 4-year college curriculum leading to a degree. Of the managers responding, 88.4 per cent indicated that there should be a training program specifically designed for present employees in the grain marketing and farm supply industry. Information obtained from the study indicated that there was a need for two training programs; namely a program designed specifically for prospective employees and a program designed specifically for present employees. A companion study by Donald G. Green includes recommendations for training present and prospective employees in grain marketing and farm supply businesses.

WARREN, MARSHALL G.
Implications for Adult Education in Agriculture From Responses of Participants in the Veterans Farm Training Program in the Central Region: VII. Audio-Visual Materials and Methods. Thesis, M.S. 1952, Iowa State College. 192 p. Library, Iowa State College, Ames.

Purpose — To determine the opinions of veterans enrolled in the institutional on-farm training program concerning the values of audio-visual materials and methods and the extent to which they should be used in an effective instructional program of agricultural education for adults.

Method — This study is one of a series made in connection with the cooperative study of institutional on-farm training in the Central region. States participating in this study included Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, and Wisconsin. For this investigation a printed schedule was sent to every veteran in each of 50 classes selected by random sample in each of the above States. A table of random numbers was then used to select 300 completed schedules from each of the States. Information on the schedules was coded and placed on IBM cards. The statistical treatment consisted of computing means, percentages, and chi-square values. States and ratings of the instructors were used as variables in treating this study.

Findings and Interpretations — The materials and methods ranked according to the extent to which veterans indicated that they had been of value to them in their institutional on-farm training were as follows: (1) Farm and home records; (2) textbooks, reference books, and bulletins; (3) notebooks; (4) field trips to experiment stations, State colleges of agriculture, and county field days; (5) field trips to farms in the community; (6) field trips to commercial firms such as stockyards, fertilizer plants, demonstration farms, and machinery companies; (7) field trips to farms, shows, and sales; (8) annual farm and home plans. The audio-visual materials and methods listed below rank according to the extent to which veterans indicated they should be used in an effective instructional program: (1) demonstrations; (2) field trips; (3) motion pictures; (4) specimens and models; (5) filmstrips and slides; (6) blackboards; (7) photographs, pictures, charts, tables and graphs; (8) bulletin boards; (9) maps; (10) wire or tape recordings. The results of this study suggest that the audio-visual materials and methods employed in the institutional on-farm training program have been of considerable value to the veterans. However, it is possible that more effective use might be made of these materials and methods. It further suggests that the use of audio-visual materials and methods in an effective instructional program is desirable. Continued effort to develop better techniques and the proper psychological approach to the use of these materials may increase their effectiveness.

WEED, JOSEPH BERNARD
Factors Related to Present Occupation of
Male High School Graduates of Glidden-
Ralston Community High School. Thesis,
M.S., 1963. Iowa State University. 115 p.
Library, Iowa State University, Ames.

Purpose -- This study was undertaken to determine those factors related to the present occupations of the male high school graduates of the Glidden-Ralston Community High School.

Method -- The study involved 180 male graduates during the 1948-1960 period. The permanent records in the office of the principal and questionnaires completed by the graduates were the sources of data.

Findings -- Approximately 58 percent of the male graduates were sons of farm operators. The remaining 42 percent were town-reared.

Findings revealed 17.52 percent of the graduates had entered professional occupations, 15.25 percent were engaged as farm operators and farm labor, 14.12 percent were in the clerical and sales field, 20.34 percent were completing military service or continuing their education. The remaining 32.77 percent were found to be in the occupations of managers, craftsmen, operatives, service, and non-farm labor.

Over 41 percent of the male graduates of the Glidden-Ralston high school had migrated from the state.

Of the graduates who reported net earnings of $7501 and over, 73 percent were in occupations outside the state.

Over 37 percent of the graduates were engaged in farm or farm related occupations as compared to 42 percent who indicated themselves in occupations not farm related. Over 20 percent of those reporting were found to be located in the military service or classified as students. More than 53 percent of the sons of farm operators were engaged in farming or farm related occupations.

About 48 percent of the total male graduates had enrolled in college.

There was found to be a relationship between the education of the parents and the tendency of the graduate to enroll and complete his college training.

It was found that 66 percent of the graduates ranked in the lower one-half of their class at the time of graduation.

Of the graduates remaining in the Glidden community, only 18.18 percent were in the first quartile, whereas 37.29 percent were in the fourth quartile.

WEED, JOSEPH BERNARD

Graduates earning $6501 and over were approximately equally divided between the top one-half and bottom one-half of their classes.

Graduates in farming occupations tended to have come from the lower one-half of their graduating classes.

Mathematics was found to be valued by graduates more than any other subject.

About 73 percent of the graduates reporting had not attended any commercial, trade or military school since graduation.

Findings indicate increased emphasis should be given by the Glidden-Ralston Community High School to the following: (a) informing and helping the top ranking individuals with leadership and occupational opportunities in the community, (b) providing occupational training adapted to the interests and aptitudes of the male students, (c) counseling vocational agriculture students to enroll in more mathematics, science, and communicative skills courses, (d) programs to improve the scholastic achievement of the male students, and (e) an evaluation of the present program with respect to the role of extra-curricular activities.

WELLER, E. DOUGLAS-HAIG
Educational Measures for Agrarian Reform in
Jamaica. Thesis, M.S., 1952, Iowa State
College. 110 p. Library, Iowa State College, Ames.

Purpose — To appraise the educational facilities of Jamaica from the standpoint of the expedition of agricultural reform, and to suggest needed revisions and additions to the current educational program of Jamaica in order to expedite such reform.

Method — Making use of his experience as a born and reared Jamaican and of numerous reports, official and other, on the current economic, political, and social conditions in Jamaica, the investigator first produced a comprehensive review and analysis of the total situation in this island, particularly with reference to the agrarian problem. He next appraised the current educational facilities of the island, in the light of the desired reforms in the agrarian situation, and finally formulated some specific recommendations for bringing about the quantity and kind of education needed.

Findings and Interpretations — (1) Because agrarian reform is ultimately a political question, the colonial masses must be taught the need for education designed to promote economic and social progress.

(2) Increased facilities for teacher training must be instituted. This training must be not only in techniques but also in the principles and philosophic thought which must constitute the true educational basis of teaching, vocational or other.

(3) The curriculum, at all levels of education, should express the life of the community and emphasize the value and dignity of agriculture.

(4) Since certain aspects of the social environment constitute obstacles to agricultural education at the secondary level, it is desirable that multilateral schools be established instead of different schools for academic and vocational education. The interrelationship of urban and agrarian interests must be stressed.

(5) Instruction in agriculture should be made available to regularly enrolled pupils in both elementary and high schools who expect to become farmers, and to out-of-school young farmers and adult farmers. Supervised farming programs should be conducted at the homes of pupils.

(6) Students at all levels should be given experience in cooperative and leadership activities.

(7) The training of teachers of agriculture for both primary and secondary schools should include emphasis upon methods of (1) conducting supervise farming program, (2) supervising group activities of pupils, and (3) teaching adults.

(8) In the organization of adult education and community development, the newly created Ministry of Education and Social Welfare should see that there is a coordination of the activities of the different agencies.

WELLS, CARL E.
Relations Between Home Characteristics of
Farm-Reared Male High School Graduates
and Their Status in Nonfarm Occupations.
Thesis, M.S., 1958, Iowa State College,
67 p. Library, Iowa State College, Ames.

Purpose -- To evaluate the extent to which certain home environmental characteristics affected the occupational status of farm-reared male high school graduates, who were in occupations other than farming.

Method -- Forty communities and schools in the central cash grain and eastern livestock areas of Iowa were grouped in pairs. Twenty of the schools had offered vocational agriculture and 20 had not. Questionnaires were mailed to all of the farm-reared boys who were in nonfarm occupations in 1958 and who had graduated during the period 1943 to 1954 inclusive. The final sample included 320 questionnaires, four being selected from each school for each of two periods of graduation (1943-48 and 1949-54).

Findings -- A preliminary study revealed no difference in status between sons of farm owners and sons of nonfarm owners. No difference was found to exist in the occupational status of the graduates who had and those who did not have vocational agriculture training. The measures of status were: annual earned income, degree of expressed satisfaction, and score of their occupation according to the North-Hatt Scale of occupational prestige.

No significant correlation was found between any of the home characteristics studied and the graduates' status in their nonfarm occupations. Those home characteristics were number of acres operated by parents, age of father, sibling pattern, and education of parents.

A highly significant coefficient of correlation between recency of graduation and annual earned income was sufficient to warrant a prediction of annual earned income. Using a quadratic equation for the prediction of annual earned income for years since high school graduation, a maximum annual earned income was attained during the 17th year after high school graduation or at age 35.

A comparison of a study made by Rhea of the graduates from Iowa State College in the Division of Agriculture from 1931 to 1952 yielded information which was used in a comparison of the annual earned incomes. The total life time earnings for high school graduates was $237,901 and for the college graduates $359,894. The college graduates reached their maximum income at age 53. The average annual earned income for high school graduates was $5,062 and for college graduates, $8,370.

WESCOAT, WENDELL MAYNARD
Attitudes of Farm-Reared Male Graduates of
the Ogden High School Toward Agricultural
Programs. Thesis, M.S., 1956, Iowa State
College. 86 p. Library, Iowa State College, Ames.

Purpose -- The purpose of this study was to compare the attitudes of farm-reared, male graduates of the Ogden High School toward agricultural programs, with the attitudes of similar graduates from two high schools which had not offered vocational agriculture.

Method -- The control group of nonvocational agriculture graduates was from the Boxholm and Woodward communities. Only persons who had been graduated during the school years 1940-1941 to 1953-1954 inclusive, were included in the study. Schedules were returned by 66 percent of the graduates in the Ogden community and by 57 percent of the graduates in the control communities. Responses were used from 66 graduates in the vocational agriculture community and an equal number in the nonvocational agriculture communities.

Only male graduates whose parents had earned 50 percent or more of their incomes from farming during two or more years while the graduates were in high school were included in the survey.

Findings and Interpretations -- Significant differences at the 5 percent level, computed by the chi-square method, were found in responses to the statement: "Parity is a measuring device defined by Congress for determining the relationship between the prices of farm and nonfarm commodities." In the case of this statement members of the nonvocational group with the correct definition of the term "parity" as defined by Congress.

Respondents in the nonvocational agriculture communities rated the value of cooperatives to farmers higher than did respondents in the vocational agriculture community.

In eight other tables the responses of the vocational agriculture graduates showed appreciably higher scores than did the responses of the graduates of the nonvocational communities. In five cases the control group showed noticeably higher scores. However, the differences were not significant at the 5 percent level in any of these 13 comparisons.

In view of the lack of agreement of members of both groups with the viewpoints of specialists concerning many aspects of the government agricultural programs and in view of the lack of knowledge about these programs, it would appear that more attention should be given to such matters in vocational agriculture classes, and also in the programs of other educational agencies.

WIGNES, STANLEY A.
Tax Bases For School Purposes of Farm and
Non-Farm Properties in Marshall County.
Thesis, M.S., 1954, Iowa State College.
47 p. Library, Iowa State College, Ames.

Purpose -- The purpose of this study was to determine the relative local burden of supporting education by farm and non-farm property in Marshall County, Iowa.

Method -- The data for this study was gathered from the files of the Marshall County Recorder, the County Auditor, and the County Treasurer located in Marshalltown, Iowa.

Findings -- The findings of the study showed the average 1953 school millage levy for non-farm property to be 11.086 mills higher than for farm property. The median true tax rate was 6.22 mills for farm properties and 7.94 mills for non-farm properties. The average true tax rate was 6.654 mills for farm properties as a whole and 7.969 mills for non-farm properties as a group. The ratio of farm true tax rate to non-farm was 1 to 1.2.

The median assessment ratio was 28.80% for farm properties and 28.74% for non-farm properties. The average assessment ratio was 31.50% for farm properties as a group and 27.37% for non-farm properties as a group. Agricultural land tax credit reduced the true tax rate for farm land by 0.850 mills. A method was suggested for determining an equalization factor that could be used to minimize inequalities in assessment ratios.

The findings of this study indicated that inequalities existed between farm and non-farm school tax burden. These differences, however, were not as great as had been indicated in other studies. The findings also showed that all property was assessed at approximately only half the value required by law which made the property tax burden appear to be heavier than it actually was.

WILLIAMS, JOE BROOKS
History of the Visual Instruction Service
at Iowa State College. Thesis, M.S., 1954,
Iowa State College. 89 p. Library, Iowa
State College, Ames.

Purpose -- To describe the development of the Visual Instruction Service of Iowa State College from the beginning of its formal activities in 1915 as a part of the Engineering Extension Department.

Method -- Official records of the College and many other published and unpublished materials were examined. Additional information was obtained by interviewing staff members and by correspondence with former staff members.

Findings and Interpretations -- Prior to 1915, in addition to the individual resources of staff members, the Agricultural Experiment Station had a few charts and glass lantern slides available for distribution and a small library of 35 mm. motion picture films relating to industrial practices had been developed by the Engineering Extension Department. In 1915 Iowa State Teachers College cooperated with Iowa State College to form a cooperative film and slide library and the Engineering Extension Department of Iowa State College published bulletins encouraging public schools to buy motion picture projection equipment and offering advice concerning efficient projection of glass lantern slides and motion picture film.

Charles Roach became director of the Visual Instruction Service around 1916. He resigned in 1925 at which time H. L. Kooser, the present director, was appointed to the position. In 1931 the first college course was offered in visual methods of instruction. In 1940 the course title was changed to Audio-Visual Methods in Education which is the present title. The Visual Instruction Service has had the responsibility of producing some motion picture films and distributes W.O.I. - T.V. Kineoscopes as well as other audio-visual materials.

WYATT, WINDOL LEE
Occupational Status of Former "Chapter" and
"State Farmers" in the Iowa Association,
Future Farmers of America. Thesis, M.S.,
1961, Iowa State University of Science and
Technology. 115 p. Library, Iowa State
University of Science and Technology, Ames.

Purpose -- The purpose of this study was twofold: (1) To determine the relationship, if any, of the degree received and the occupational status of the former Chapter and State Farmers; and (2) To attempt to determine if the method of selection of State Farmers was in line with the aims and purposes of vocational agriculture and the Future Farmers of America.

Method --- State Farmers were selected by random sampling from the list of State Farmer recipients from 1929 to 1953 inclusive. Five alternates were also selected by the same method for each year. Chapter Farmer classmates were paired with each of the State Farmers selected for the study. For this study one hundred State Farmers were paired with 100 Chapter Farmers classmates, from the same schools, and that graduated the same time.

Findings and Interpretations -- Significant differences existed in that the State Farmers had more years of training in vocational agriculture and had participated more years in Future Farmers of America activities. Seventy percent of the Chapter Farmers were the sons of farm owners. Farm ownership by the parents was not a significant influence in the attainment of the state Farmer degree. Seventy-two percent of the State Farmers and 52 percent of the Chapter Farmers were the sons of parents, who farmed 161 acres or more. The data indicated that the State Farmer recipients had greater resources of land available than did their Chapter Farmer Classmates.

State Farmers had a smaller number of older brothers, a smaller number of younger brothers and a smaller number of sisters than did the Chapter Farmers. The differences were not great enough to be significant.

More than three times as many (52 State Farmers and 15 Chapter Farmers) State Farmers continued their formal education beyond high school, than had the Chapter Farmers. Seventy-one percent of the State Farmers and 33 percent of the Chapter Farmers had attended agricultural colleges. Of the two groups that attended college 68.65 percent were engaged in farming or in a related agricultural occupation.

Fifty-seven percent of the 37 State Farmers who attended an agricultural college were engaged in farming, whereas, 60 percent of the 5 Chapter Farmers who had attended agricultural colleges were engaged in farming. Eight of the 19 agricultural college graduates or 42.1 percent, were farming. Forty-four percent of the members who attended nonagricultural colleges were engaged in agricultural occupations, as compared to 83.3 percent of the members who attended agricultural colleges were engaged in agricultural occupations.

WYATT, WINDOL LEE

The value of the former members training in vocational agriculture and the experiences in FFA, was expressed higher by the State Farmers than the Chapter Farmers, even if the State Farmers were not farming. No significant differences existed as to the age at which the former members were married. Ten of the former State Farmers achieved a commissioned rank in service while only two Chapter Farmers did likewise. More former Chapter Farmers received on-the-job training while more State Farmers attended college.

Seventy-five percent of the former State Farmers and 72 percent of the former Chapter Farmers were engaged in agricultural occupations. Fifty-seven percent of the former State Farmers and 65 percent of the former Chapter Farmers were farming. Former State Farmers, who were the sons of landowners, chose agricultural occupations more frequently than did the former Chapter Farmers, who were the sons of landowners.

Twenty percent of former Chapter Farmers and 45 percent of the former State Farmers, who were farming were from farms where the parents farmed 241 acres or more.

Eight percent of the former Chapter Farmers and 27.66 percent of the former State Farmers reported an income, for 1953-1955 average, of $8,000.00 and up. In the $10,000.00 and up income status classification there were 14.9 percent of the former State Farmers and 4.25 percent of the former Chapter Farmers. Nine percent of the Chapter Farmers and 22 percent of the State Farmers who were farming were earning $8,000.00 or more. Former State Farmers were in the higher income brackets of the three occupational classifications of "Farming", "Nonfarm agricultural" and "Nonagricultural". The average yearly income of all the former Chapter Farmers in this study was $3,836.06, whereas the average for the former State Farmers was $4,613.34.

The data indicated that the former State Farmers were more stable in their occupational choices, in all classifications, than were the former Chapter Farmer classmates.

YANCY, ROBERT ERNEST
Farm Mechanics Instruction in Negro Schools
in Louisiana. Thesis, M.V.E., 1957, Iowa
State College. 67 p. Library, Iowa State
College, Ames.

Purpose -- This study was designed to obtain information concerning the extent to which the Negro high school departments of vocational agriculture in Louisiana were equipped to meet the farm mechanics needs of the Negro farmers in that state.

Method -- The thirteen areas of instruction commonly included in the farm mechanics phase of high school vocational agriculture were studied. Data for this study were collected by the use of a questionnaire. The investigator met with the teachers of vocational agriculture at the State Farm Mechanics Workshop for Negro Teachers of Vocational Agriculture held at Southern University, in Baton Rouge, Louisiana in August, 1956. Each of the approximately fifty instructors attending the workshop agreed to provide the information requested on the questionnaire and return it to the investigator.

Findings and Interpretations -- The 41 teachers had completed an average 10.6 semester hours of college work in farm mechanics. They had an average of 1.3 years of full-time employment in areas related to farm mechanics, and an average of 10.3 years as teachers of vocational agriculture.

There were four instructors who devoted less than ten percent of instructional time to the teaching of farm mechanics to twelfth grade students; 12 instructors who devoted 10 to 30 percent; 21 instructors who devoted 31 to 50 percent; and four instructors who devoted over 50 percent of instructional time to the teaching of farm mechanics to twelfth grade students.

The following types of buildings were used in providing farm mechanic instruction; 19 frame buildings, 1 brick building, 9 block buildings, 1 stucco building and 4 corrugated metal buildings. Seven schools had no buildings for the teaching of farm mechanics.

Nineteen of the 34 schools with shops did not have heavy duty electric saws. Only two schools had air compressors. While 39 schools had wood braces and auger bits. 21 schools did not have wood drill bit sets, 18 schools did not have framing squares, and 18 schools did not have smoothing planes.

Twenty-nine of the 41 schools did not have forges, and no school was well equipped to provide instruction in the repair of farm machinery and motors. Only four schools had welders.

Only 25 schools had lineman's side cutter pliers, and these schools averaged less than two pairs per school. More than one-third of the schools did not have equipment to teach the laying out of contour lines or the planning of terraces.

YANCY, ROBERT ERNEST

Farm safety, farm carpentry, soil and water conservation, farm machinery and power, and farm electricity were given major emphasis in the farm mechanics programs for all grades of students. Very little instruction was provided in welding, soldering, and sheet metal, and in harness repair.

The findings in this study indicate that much improvement should be made in the provision of adequate buildings and equipment, and in allocation of instructional time, in order to improve the instructional program in farm mechanics for the Negro vocational agriculture students in Louisiana.